Assessment and ranking of traffic management Method for passenger safety in Zabol

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ABSTRACT : *The risk of accidents on the roads and the cost-benefit ratio of immunization impact, there is a direct connection. The Urban priority for immunization is important. To set priorities road safety with risk of accident, it is necessary to use quantitative methods for determination of dangerous conditions. Risk index ranking of streets or intersections are used in safety studies. In this regard, the present study aimed to assess and set priorities risk pathways index is in Zabol. Analytical method based on a library of documents and researches the type of field studies and surveys are used. For data analysis, the AHP model will be used. According to an analysis made of the 8 indicators for the safety of pedestrian traffic management: index (A) Improved control intersections (traffic islands - control priority - creating ways to turn right - creating fields - Installation Symptoms) weighing 0.258 intersection improvements In the ranked first, and the index (B) one-way streets in eighth place with a weight of 0.079 Placed in the eighth ranking.*

KEY WORDS: *priorities Passages, risk indicators, Traffic, Zabol*

I.   INTRODUCTION

With the arrival of the industrial revolution in the eighteenth century, the city's population focus, activities and technological developments were intense. A waive of new industries and advanced manufacturing industries, including the cities began to rise. Quick and easy access to the vehicle and posterity of the results, such as traffic, pollution and accidents along. Vehicle accidents on urban roads is one of the major challenges of urbanization. This year many financial and physical damage afflicted on the citizens. Among the factors that cause an increase in traffic accidents each year are as follows. Urban population growth, the increasing number of vehicles, lack of enough investment in urban infrastructure, engineering and scientific principles to the design of other passages (Ghaforyan & Hakakzadah, 2010, 2).

To extend the life and increase car traffic in cities and roads in the past half century, unfortunately, the number and severity of traffic accidents is increasing rapidly. The economic and social benefits arising from to develop communication and speed of movement of goods and passengers had to be sought. Financial losses of life and property caused by accidents imposes a load on society. Therefore in the advanced industrialized countries and a broad range of research in universities and research centers on the causes and to occur traffic accidents and ways to avoid them or is in progress. Rate and calculate the waste and the costs to society are also included in this research. These countries through the application of these findings are much success in lessening the number and severity of crashes have achieved gains. Traffic engineering, to meet the needs of new and immerging problems of displacement, mobility and transport there is, is the product of social conditions. This means that new fields based on social conditions and community needs that arise and then changes. If the invention opens, it usually takes a longtime to understand it's implications for their users, but never realize they have it all. As technology is changing to meet the needs of the needs of the community, it's needs and new technologies are created. Engineers, who are constantly trying to meet these needs. (Hossayni, 2007, 25).

Based on studies of traffic accidents in Iran in comparison with developed nations and even in developing countries, much more. Loss of personnel was the worst results of accidents that high social and economic costs of irreparable affects on the community. The death toll in traffic accidents resulting in pedestrian accidents is very high. So, according to available statistics on accidents in urban traffic pedestrians 31.5% of

deaths within the city, as well about 43 percent of total deaths in crashes (urban and suburban) form (Hossayni, 2007, 25). Because little research has been done in the field of accidents pedestrians than other factors, such as neglected diseases society of accidents can be named.Obviously, with the current trend soon we will be witnessing a national bad luck. Because accidents are pedestrians, a multifactorial affect, remove the causes of accidents and pedestrians harness unpleasant subject, a comprehensive partnership between the organizations to demand ISPs. In this study, we tried to set priorities the passage of the comprehensive factors should be used to secure them.

II.   BACKGROUND RESEARCH

Studies in the twenty-first century America has predicted more attention to issues of safety and security of transport, new technology and sustainable design directed and teal, 2002, 12) Daniel). In other studies, traffic safety management is the most important factor in traffic safety control are discussed. Traffic safety and management measures described in (Hu and Zhu, 2005, 2067). In the studies, to cultural issues have been discussed in the traffic safety and safety culture issues into three passages and the environment, and human error issues and problems associated with the automotive division (Adrian, 2006).Badgley and Jacobs to study traffic safety situation in developing countries are discussed. The result of their research is to remark a hierarchy of geometric design and safety in this country is one of the main problems (Baguley and Jacobs, 2001).
Stijn and Wets the study decided converting intersections to reduce accidents in the field. However, this study has proposed to review this matter, crash rates before and after to convert pedestrians and cyclists to explore the intersection (Stijn, Wets, 2006). In studies in Turkey because of the horizontal elements, most of geometric design. Vertical geometric design elements have been identified (Xiaoming etal, 2007).

Research Goals
–   Identification of safety problems associated with traffic and for citizens
–   Crash costs in cities
–   Creating quiet to the streets to promote the welfare, safety and comfort

III.   MATERIALS AND METHODS

The issues of decision variables related to problems in the real world, more and qualitative variables are interactive. These variables must be converted to numbers, mathematical decision models are applied to the decision making several models exist in between the multiple attribute decision making model (MADM) is noted. Technique (AHP) by Prof. Thomas L. Saaty In the late seventies. Passion is presented. This model is one of the best multi-criteria decision making models and it is great. This method is the most comprehensive system designed for multiple criteria decision making, because this technique to formulate the problem and provides a hierarchy of qualitative and quantitative indicators, as well as to consider the issue. Accordingly, this paper introduces the study area, indicators were selected by the study were analyzed in three stages.Finally, a scheme of priorities the-current criteria for the use of the AHP model has been done. The population of this study consisted of managers and planners. Random sampling and systematic sampling using Cochran formula to collect data from questionnaires, use of library resources and Internet sites. All data gathered originally collected and subsequently processed by Excel software Expert Choice Software is a specialized application for AHP model has been analyzed.

Theoretical Foundations
Urban Spaces : Difference and diversity in cities puts people together who have different patterns of life and makes the city an attractive place. But another aspect of this variation is unknown, the way humans that happens in a public place at a different time units (eg, streets, restaurants, etc.) Are not strangers to each other. Increases the anonymity of urban conditions. This could lead to increased human suffering, particularly for women and those who are more physically vulnerable.Urban spaces, social life and social fields to display different views of the city major identity, collective expression of urban areas, where the spirit of collective cooperation to strengthen compliance with the last goal of human civilized societies are social (Hanifiasal , 2009, 19).

Security : Security is one of important topics in the humanities, like many other concepts (society, culture, values, etc.) and the complexity innate and essential credit is being dumb. So Buzan, the leading theorists in this regard stated, every take on to understand the concept of security, without inconsistencies and lack of enough knowledge of these ideas is simplified (Tajik, 2000, 37).Canadian Defense Academy (1989), maintain security acceptable way of life for all people by the needs and lawful hopes of the citizens well-being. This includes, insisting the military, internal subversion and destruction of political values, economic and social, which are essential for quality of life (Buzan, 1999, 31).

Place of Security Studies in Geography and Urban Planning : Urban security in various fields of city planning concept that has been studied. By reviewing the literature, it is hard to separate the different academic disciplines in this category to be defined. This is mainly "because of the adoption of interdisciplinary perspectives and interdisciplinary study of man is freed from accepting any abstraction boundaries (Rahimi, 2011, 28).On the issue of urban insecurity as a subset of studies on the psychological aspects of quality of life in a form that describes the environmental quality of life of citizens. Lavinthal remarks came in second and third domain is the geographic studies. But as an urban geographer specializing in Security Studies, Rachel Paine wrote. Most new and interesting things about the fear out of the field of geographic space has been carried out. He also believes that most things in this case with emphasis on the physical environment is gone. While the concept of security and fear within the spatial and social exclusion can best be described (Pain, 2000, 366).

IV.   AREA OF STUDY
Sistan region with an area of 15,197 sq km in the geographic range between 30°C and 5 minutes to 31 degrees 28 minutes latitude and 60 degrees 15 minutes to 61 degrees 50 minutes longitude in southeastern Iran and the northern part of the province and Balochistan by about one eighth of the total area allocated to the province. Average annual rainfall in the region 6/59 mm, mean annual temperature of 22°C and the average annual relative humidity is 38 Drsdmy.According to the classification criteria land Domarten 9/1 is classified as Frakhshk areas. One of the hallmarks of the region, which winds 120 days in the mountains between Afghanistan and plain air pressure, occurs. The wind almost from early June starting at about 4 months of the year continues in Zabol plain and almost Dravst September (late August) is terminated.
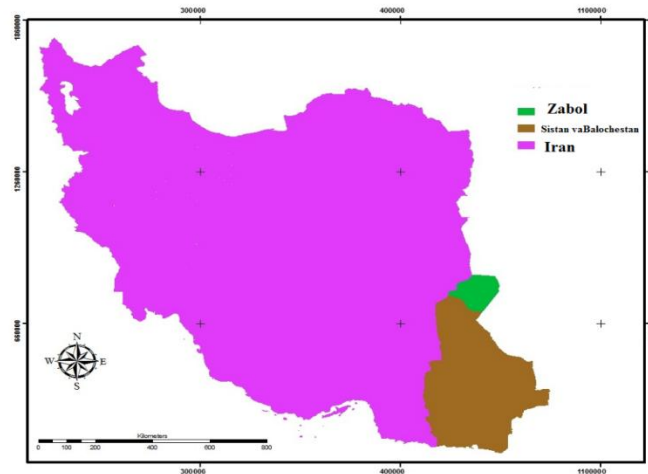

Figure (1): position in the region, Sistan-Baluchistan province, Source: research findings
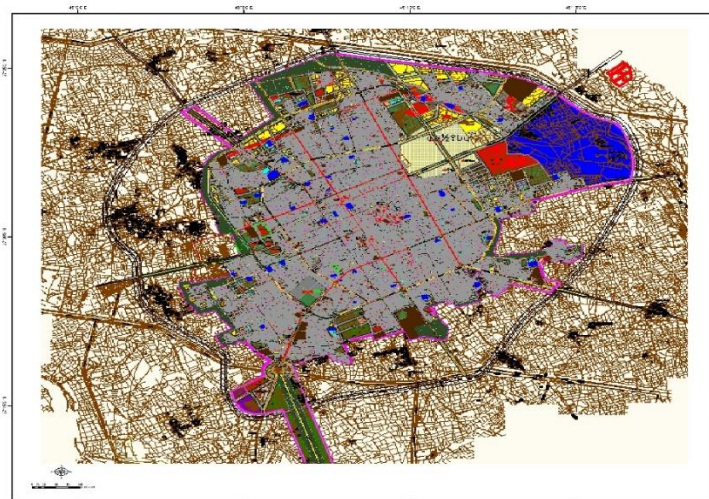

Figure (2): Map of Zabol, Source: research findings

V. DISCUSSION AND CONCLUSIONS

Traffic management measures for the safety of pedestrians

- control, parks, street and parking design optimization
- one-way streets
- the traffic calming measures
- color streets (line drawing, colored asphalt(
- Improved control intersections (traffic islands - control priority - creating ways to turn right - creating fields - Installation Symptoms)
- maintain the security of pedestrian crossing (passage - creating a protective fence)
- Crossing Constraints
- Measures to build sidewalks

First, the problems of converting a hierarchical structure that includes a three-level hierarchy of objectives, criteria, and be choices are

Table (1): Indicators for traffic management techniques for pedestrian safety

A	control, parks, street and parking design optimization
B	one-way streets
C	the traffic calming measures
D	color streets (line drawing, colored asphalt)
E	Improved control intersections (traffic islands - control priority - creating ways to turn right - creating fields - Installation Symptoms)
F	maintain the security of pedestrian crossing (passage - creating a protective fence)
G	Crossing Constraints
H	Measures to build sidewalks

Source: research findings

Comparison matrix to determine the binary parameters (A =ahj) question are results and their importance and expertise of specialists in this field is used.

Table (2): Matrix A couple of indicators

H	G	F	E	D	C	B	A	Indicators
1.4	1.3	1.7	1.8	1.2	7	1	2	A
3	4	1.3	1.5	4	2	5	1	B
5	7	1.3	3	1.2	1	1.7	1.2	C
6	8	1.2	2	1	2	2	1.4	D
2	6	1.3	1	1.2	1.3	8	5	E
5	8	1	3	2	3	7	3	F
1.3	1	1.8	1.6	1.8	1.7	3	1.4	G
1	3	1.5	1.2	1.6	1.5	4	1.3	H
24.07	38.03	10.09	15.01	13.08	19.05	31.7	16.03	∑

Source: research findings

Matrix pair (two for binary) index is obtained as follows:

It is to fill this matrix; scale of 1 to 9 is used to determine the relative importance of each element relative to other elements.

Table (3): 9 Saaty scale quantitative comparison of binary options

Intensity of importance	1	3	5	7	9	2-4-6-8
Definitaion	Equal importance	Weak importance of one over another	Essential of strong importnace	Demonstrated importance	Absoloute importance	Intermediate values

Source: research findings

After forming the matrix of paired comparisons and values should be the norm. For this purpose, the value of each column of the matrix corresponding to the sum will be divided.

Table (4): Paired comparison matrix normalized relative indicators and weights

H	G	F	E	D	C	B	A	Indicators
0.056	0.033	0.155	0.119	0.086	0.358	0.031	0.122	A
0.121	0.104	0.119	0.099	0.298	0.102	0.157	0.061	B
0.202	0.182	0.119	0.198	0.086	0.051	0.053	0.073	C
0.242	0.208	0.110	0.132	0.072	0.102	0.063	0.085	D
0.080	0.156	0.119	0.066	0.086	0.066	0.252	0.306	E
0.202	0.208	0.091	0.198	0.144	0.153	0.220	0.184	F
0.052	0.026	0.165	0.105	0.130	0.087	0.094	0.085	G
0.040	0.078	0.137	0.079	0.115	0.076	0.126	0.079	H

Source: research findings

The logical consistency of judgments : now the same steps for all choices of (a, b, c,) we do. This step must be calculated to determine whether the inconsistency rate between paired comparisons we are compatible or not. Here are just a couple of inconsistency rate for comparisons of account we choices of similar operations to be performed on every indicator. Inconsistency rate can be obtained from the following relationship be:
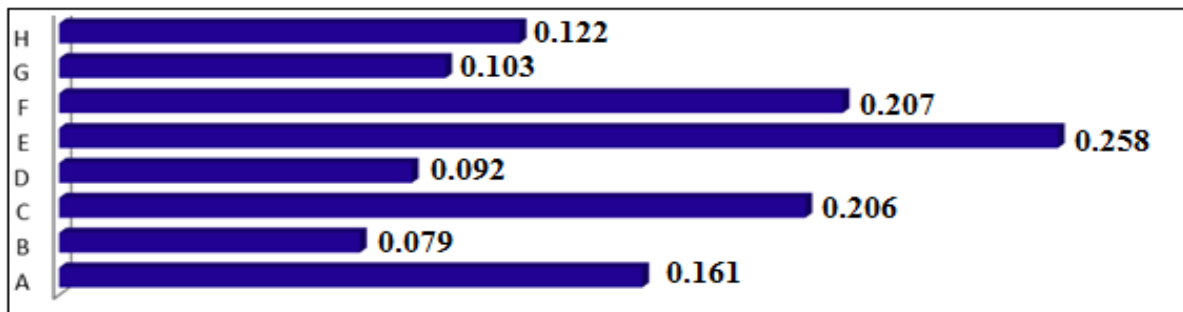
$$I..R. = \frac{I..I.}{I..I..R.}$$

Inconsistency rate (IR): the table below is extracted:

N	1	2	3	4	5	6	7	8	9	10
$I..I..R$	0	0	0/58	0/9	1/12	1/24	1/32	1/41	1/45	1/45

So the inconsistency rate calculations in the present study, 0.060 is .Since IR = 0.060 smaller than 0/1 , then the paired comparisons , there is a remarkable consistency All calculations of the eigenvector (eigenvector) is carried out .In the questionnaire, and explain briefly introduce the measure compiled and presented in Table values for comparison of paired preference, paired- comparison was requested to be completed. The sample questionnaire, and program managers are urban planners. After collection, analysis and verification questionnaire, the following results were obtained:
A (L: 0.161) B (L: 0.079) C (L: 0.206) D (L: 0.092) E(L: 0. 258) F (L: 0.207) G (L: 0. 103) H H(L: 0.122)

Inconsistency = 0.060
With 0 missing judgment
Figure (3): Results of hierarchical analysis using expert choice software, Source: research findings

Table (5): Prioritize and weight standard methods of traffic management parameters for pedestrian safety

Weight	Criterion	Indicators
0.161	control, parks, street and parking design optimization	A
0.079	one-way streets	B
0.206	the traffic calming measures	C
0.092	color streets (line drawing, colored asphalt)	D
0.258	Improved control intersections (traffic islands - control priority - creating ways to turn right - creating fields - Installation Symptoms)	E
0.207	maintain the security of pedestrian crossing (passage - creating a protective fence)	F
0.103	Crossing Constraints	G
0.122	Measures to build sidewalks	H

Source: research findings

According to an analysis made of the 8 indicators for the safety of pedestrian traffic management:
index (E) Improved control intersections (traffic islands - control priority - creating ways to turn right - creating fields - Installation Symptoms) weighing 0.258 intersection improvements In the ranked first,
The Second rank, the index (F) maintain the security of pedestrian crossing (passage - creating a protective fence) with a standard weight of 0.207.
 The Third rank, the index (C) the traffic calming measures, weighing 0.206,
The Fourth rank, the index (A) control, parks, street and parking design optimization of weighing 0.161,
The Fifth rank, the index (H) Measures to build sidewalks weighing 0.122 metric.
The sixth rank, the index (G) Crossing Constraints the weight 0.103.
The seventh rank, the index (D) color streets (line drawing, colored asphalt) with a standard weight of 0.092.
Finally, the eighth rank, the index (B) one-way streets in eighth place with a weight of 0.079 criterion.

VI.   CONCLUSIONS

        Given the above, promote safety should be a priority agenda guardians of safety of urban street network, so traffic accidents are usually killed and wounded civilians, may be lessened. One of the most important reasons of urban road safety promotion, pay attention to all the little issues at planning and urban design. Meanwhile, the city streets should be the main factor of movement and on the other hand, all factors must be considered to prevent the accident. A citizen in an urban street network should be able to benefit from intelligent transport systems, knowledge based, at least time to reach its destination safely and comfortably. Necessary for a safe trip, the design and definition of safe access routes to the city and the street network without stopping chemists using different modes of transport is. This is no integrated street network and travel exchange points is not possible.According to an analysis made of the 8 indicators for the safety of pedestrian traffic management: index (A) Improved control intersections (traffic islands - control priority - creating ways to turn right - creating fields - Installation Symptoms) weighing 0.258 intersection improvements In the ranked first, and the index (B) one-way streets in eighth place with a weight of 0.079 Placed in the eighth ranking.
At the end of the speech in favor of the Messenger of Islam as saying "the city in which the server is not secure, not cities", it is hoped to be able to complete to develop an urban street network, reducing travel time and promote the culture of passage among people, the most advanced and integrated transport network traffic to provide citizens with the use of different modes of transport and infrastructure communication, traffic systems available, safe, smooth, comfortable and clean home We promote safety and street network and global transport system and urban traffic assist.

VII.   SUGGESTIONS

- Different routes of public transport to access the city center and main hub with access from one system to another in minimum time.
- Proper design of space stations. In order to properly cover the districts of Zabol public transport system in terms of demand.
- Design and defining the access routes to all networks Zabol road.
- Increase the comfort and safety of passengers getting on and off and on during the trip and pay special attention to the elderly and disabled.
- Safety inspection infrastructure in urban street network.
- Laws and rules and uphold them.
- Rapid implementation and low cost of transport and traffic.
- Improve the efficiency of existing facilities, considering the needs of different users of the street.

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