12th International Scientific Conference

BUSINESS AND MANAGEMENT 2022

May 12–13, 2022, Vilnius, Lithuania

ISSN 2029-4441 / eISSN 2029-929X
ISBN 978-609-476-288-8 / eISBN 978-609-476-289-5
Article Number: bm.2022.847
https://doi.org/10.3846/bm.2022.847

BUSINESS TECHNOLOGIES AND SUSTAINABLE ENTREPRENEURSHIP *http://vilniustech.lt/bm*

IMPACT OF TRANSPORT INFRASTRUCTURE ON FACTORS AFFECTING TRAFFIC ACCIDENTS IN URBAN TRAFFIC: GREEN SUPPLY CHAIN ISSUE

Masoud ASKARNIA [1], Ali GHAFFARI [2*]

[1]*Department of Management, Qazvin Branch, Islamic Azad University, Qazvin, Iran*
[2]*Department of Computer Engineering Tabriz Branch, Islamic Azad University, Tabriz, Iran*

Received 05 March 2022; accepted 29 March 2022

Abstract. This study aims to demonstrate the added value of the urban traffic control and its incorporation in the concept of Green in the Supply chain. We intend to consider the process of urban transport infrastructure and consider all infrastructural factors with a systemic perspective to examine the impact of these factors on minimizing the risk of urban accidents. The research data are gathered using questionnaires and interviews with experts in the field of traffic and transportation. In this research the effective factors in vehicle accidents were classified into four groups of Motive, Traffic function, Incident details and accident Prevention. Infrastructure components were also categorized into four categories that can be called the four sub-components: Roadways, Base preparations, Yards and stations and Development. Also, the priority of each component and their influence to each other are determined. According to research findings, improving transport infrastructure could reduce urban accidents and improve urban traffic.

Keywords: transportation infrastructure, accidents, traffic system, supply chain, urban management.

JEL Classification: R41.

Introduction

While most supply chains rely on driving, you don't have to lose millions of dollars in revenue because of traffic jams. Urban life and urban development require urban transport, which is considered as a key issue in urban management. Even with the development of urban infrastructure necessary to improve the transportation process, we also see traffic accidents occurring in the city. The development of urbanization and population growth, the increasing desire of people to access transportation facilities to meet their basic needs and to carry out various daily activities require the use of urban communication networks. With a system perspective, there are many issues associated with the transportation issue such as transportation low, infrastructure and etc. but economics and business require to relocate people and products. However, issue of street traffic accidents, air pollution (Sun et al., 2018) and environmental degradation, are important issues that are greatly correlated with urban transportation. The category of urban traffic infrastructure and transport accidents are two other elements that can affect the components of each other in addition to the impact on urban transport (Chen & Jou, 2019).

The imposition of financial costs and sometimes irreparable cost of life will aggravate the need for attention in this area. Failure to pay attention to sustainable transport development leads to vehicle congestion and creates noise pollution and air pollution through the use of non-renewable energy. Also, the increasing growth of the population as a result of increasing travel demand and the increasing production and entry of cars, especially in large cities to saturation boundaries, and taking into account the constraints on the longitudinal and transverse elevation of the city, has led to an increase in vehicle traffic. Furthermore, the complexity of motorcycles (Bardal & Jørgensen, 2017), increasing air pollution, visual and auditory pollution (Pulugurtha et al., 2013), increasing fuel consumption costs, the need to manage the costs of urban parks (Li et al., 2018), people's wasting time, repair and maintenance of passes, traffic accidents, accident insurance and vehicle depreciation, health and medical expenses, cause reduction of the average speed of movement of vehicles.

Therefore, the urban transportation system should be selected taking into account the above factors and

* Corresponding author. E-mail: *ghaffari@iaut.ac.ir*

the following characteristics: safety, comfort, speed (Sider et al., 2016), capacity of the passengers, exact scheduling of dispatch of various types of transportation vehicles, aviation (Gitelman et al., 2017) economic assessment of construction, maintenance, utilization of the system, satisfaction of tourism travellers satisfaction/attraction (Dorn & af Wahlberg, 2019), preventing rework, and the exploitation of parallel systems with each other in passenger movements (Sun et al., 2018). All of these factors intensify the importance of studying in this area. Accordingly, in this study, the aim of studying the coefficient of influence of factors affecting accidents from a systematic point of view is to examine the status of transport infrastructure and its related factors and collecting factors Related to accidents in the categories of traffic jams, incidents, crashes, and precautionary measures of available statistics, library resources, including collections of articles and books published in these areas. This issue comes more problematic in urban supply chain where companies need to be on time and do not have time to waste in traffic. Because accidents not only could postpone all orders delivery but also can cause late delivery which is not acceptable in food industry.

As we know, the roads and streets of the company are the link between different urban canters and in this regard their significance is significant in urban areas. Communication is in fact the need for human life in cities to bring about the movement of individuals from point to point. Now considering the role of passages and streets as a series of urban nerves and the fact that streets are considered as a tool for the dynamism and development of the city. This movement is the cause of the existence of roads. Due to this reason, other causes such as: communication, access, change of location, etc. indicate the existence of passages. On the other hand, motion is a means for understanding space, the relation between passages and the movement can be expressed in such a way that the connectivity, transit, peak in the architecture and urbanization area, in the form of three properties: static (pause), dynamics (physical movement), Fluidity (visual movement), and what makes this move is the existence of an appropriate infrastructure. While the occurrence of accidents causes stagnation, interruption in movement and slowing down of speed. On this basis, we must look at the traffic problem from a wide range of perspectives.

In this research, we try to gather infrastructure components and all factors causes of urban accidents and find the relationship between them. This could lead to a wide comprehensive model. Although, there are differences in conditions, but this model is used as a basic model in another accident and traffic infrastructure studies. Albeit this model will need to localize and update in different places with different policy, cultures, roads and instruments. Therefore, purpose of this research is examining the impact of transport infrastructure on factors affecting traffic accidents in urban traffic. We have focused on these parameters because there are many obstacles and weakness in this field of study and also related works have been never concordance completely with this situation of Iran, where has an increasing burden of road injuries (Dorn & af Wahlberg, 2019), traffic violations (Chermahini et al., 2018) and alarmed situation problem. While notable fact for traffic organizations (Mahdian et al., 2018) which hasn't standards or local standards are not provided.

Theoretical foundations show, although in the underdeveloped countries, most people still live in rural areas the city has been a major part of the development that has occurred during colonial times especially in subsequent periods, among the basic needs of human such as feed, Clothing, shelter, security, health, medicine, science, etc. These require the movement or transport that is the inevitable consequence of the need for transportation between different points or different uses of the earth. Though each year, the number of vehicles on the roads of the country, and especially on the highway streets, is expected to increase, and this is expected to continue to increase even further. The increase in the number of vehicles in cities depends on several factors, such as population growth (Forehead & Huynh, 2018), economic and social conditions, cultural developments, how to use land (Litman, 2015), financial losses from wasted fuel and lost work time (Schrank et al., 2015). Although billions of dollars are spent on new roads and facilities, traffic congestion in the streets is increasing day by day, and in most of the large and medium-sized cities, traffic volumes, especially during peak hours, have reached ambitious levels. This affects the incidence and consequences of accidents (Másilková, 2017). Solving transport problems, such as the overwhelming majority of issues and social problems, requires systematic review and programming. Improving infrastructure and equipment can reduce traffic and accidents (Kaygisiz et al., 2015).

Considering that urban transport is a set of interconnected infrastructure that is used as a system for the transfer of individuals and products. Therefore, the infrastructure is the main transport sector. The poor infrastructure can be caused by many transportation problems and the consequences of poor transportation. Urban trips for any purpose (such as travel for the purpose of work and commerce, for the purpose of buying, selling, recreation, training, and medical emergency (Chiu et al., 2018) need to have a proper communications network infrastructure. The main criterion for measuring transport infrastructure can be the capacity of the road, the capacity of urban roads is the number of vehicles that can travel at a specified time within a certain range of speeds. If the infrastructure capacity is low, it will lead to traffic jams. Which requires the management of traffic, the use of existing facilities, increasing their productivity and maintaining benefits to communication networks.

According to related studies, urban transport infrastructure is commensurate with the level of communication network, intersections, safety equipment such as signboards, signs, markings, safety fences, etc., parking lots and stoppages and fields are frequent intersections in the world. The presence of traffic fields forces the driver to slow down and lead to increased safety by streamlining the traffic flow (Aeron-Thomas & Jacobs, 2011). On the other hand, reducing the speed of movement in the interference areas reduces the length of the interference region. Network communication issues and lack of planning and disorientation in the balance of user-friendliness in the city in terms of creating coherence between different applications and the distribution of urban space appropriate for the real people to move safely and reduce the length of trips, and the imbalance between high-volume trips Travel and public transportation systems are tailored to the increase in travel (Soehodho, 2016), which increases the traffic jams, delays, reduces road safety, and other traffic problems. Human issues are also important because the vehicle's communication network serves human beings and it is also a driver and a pedestrian in traffic. Vehicle issues including the excessive increase in vehicles by different vehicle types, models, years (Sider et al., 2016), and increasing people's need for relocation. Technical malfunction of vehicles that are not technically safe, not only reduce the level of road safety, but also increase air pollution and destroy the environment. These are against green supply chain attempts and can demonstrate its goal in using ethical and environmentally sound practices at every stage, with the goal of reducing air, water, and waste pollution.

One of the most important factors is Infrastructure that can influence traffic and traffic accidents in high level, whereas its benefits to users are such as comfort, cost savings, reduced travel time, reduced vehicle depreciation, and reduced social exclusion and variation in transportation routes. Infrastructure also produces side effects such as air pollution, traffic congestion, noise pollution and non-hazardous effects, and indirect effects such as employment, and etc. Utilizing the appropriate infrastructure can have a huge impact on traffic. All policies used in the field of urban transport can have a dramatic effect on the traffic situation. For example, implementing public transport policy or using bikes to go to work and creating amenities for pedestrians can help reduce traffic and crashes. In a study of different modes of travel to work, the greatest rates of exposure to ultrafine particles were found for those walking or cycling along highly crowded routes and using buses (Spinazzè et al., 2015).

Rudneva and Kudryavtsev believe that transport infrastructure is a regional transport infrastructure capital, i.e. "a certain type of capital demonstrating the specific social character, manifested in transport infrastructure ability to bring to the region the benefits with not only economic, but also with socio-cultural characteristics, and conditioning the synergistic effect of its implementation" (Rudneva & Kudryavtsev, 2013). On the other hand, rapid growth of the population and cities has led to a significant increase in vehicles and, consequently, an increase in traffic accidents (Bardal & Jørgensen, 2017). Therefore, infrastructure is very important in traffic and also on factors affecting traffic accidents in urban traffic.

A number of studies have been done on the impact of traffic congestion on road accident rates. Congestion and accidents both have a negative impact on society and the reduction of these effects is as important as possible. Pulugurtha et al. (2013), Wang et al. (2015), Kaygisiz (2012), Kim et al. (2006), Lovegrove and Litman (2008), Lovegrove and Sayed (2006), Greibe (2003), Dumbaugh and Rae (2009), Kim and Yamashita (2002) have Some examples of accident prediction model applications are based on factors affecting traffic accidents in urban areas.

In 1997, Schaffer and his colleague concluded that there might be an inverse relationship between traffic congestion and the rate of accidents. According to their research, on a road with a congestion, the speed of the vehicle is high, resulting in more accidental or fatal accidents. On the other hand, in a crowded passage network, traffic is slower, and thereafter, there is less chance of a fatal accident. This increase in overcrowding may result in more traffic accidents due to increased traffic volumes, which are less severe because they occur at a lower rate. They used a volume-to-capacity ratio to measure congestion.

Chen and Jou (2019) in their research have been studying the use of public transport as a risk factor for urban accidents compared to personal belongings. Comfort indicators, cost savings, reduced travel time, reduced vehicle depreciation, reduced social exclusion, and diversity are among the highest priorities in assessing transport efficiency. The benchmark for environmental and environmental impacts and air pollution and safety and reduce accidents are among the factors that will improve the efficiency of the public transportation system (Soehodho, 2016).

Crash motivators, Traffic function, Incident details and accident Prevention are assessed based on the various variables mentioned. Independent variables that affect the frequency of accidents include variables such as traffic flow, weather and lighting conditions, trough length, geometric design, pavement conditions and driver behaviour (Kaygisiz et al., 2015; Aeron-Thomas & Jacobs, 2011; Zeng & Huang, 2014; Marshall, 2005; Banister, 2003). Traffic constituents are also found in numerous studies, such as Pulugurtha et al. (2013), Wang et al. (2015), Kaygisiz (2012), have been reviewed. Estimating some of these variables is a relatively difficult process, and it may also be that some of these variables are not important. Accordingly, in the present study, these variables were collected,

Table 1. Infrastructures and accidents components

Factors	Subject	Resources
Highway, pedestrian, maintenance of passageways, terminals, airports, customs, ports, passageways (geometric characteristics, number of passage lines, tilt slope, type of pavement, tram bar, parking position, vehicle width, middle position, available length) Safety fences, street marking, signs, alert panel, residential areas, training venues, business locations, occupations, road improvements, shortage of facilities, length and number of street lines or percentages of the city, communication network, stopping point, bypass, Metro and Bus and Taxi Station, Passenger Transportation Capacity, Square, Square Entrance Area, Roadway, Work Place, Street Capacity, Pedestrian Bridge, Parking, P Overpass, underpass bridges, bike paths, bike hire,Non-level crossroads, car standards	Infra-structures	(Bíl et al., 2019), (Bulis & Skapars, 2013), (Schwab, 2015), (Ferrari et al., 2019), (Sam et al., 2018), (Alam et al., 2017), (Holguín-Veras et al., 2018), (Yazici et al., 2013), (Holmgren, 2012), (Aney & Ho, 2019), (Tonn et al., 2019), (Dorn & af Wahlberg, 2019), (Gitelman et al., 2017)
Movements, engineering, law enforcement, training, space and generalization, travel information, ICT planning and routing, sharing, distance work, payment and cost, security, convenience facilities, traffic information, average speed, speed, accident insurance, Passenger safety, comfort, instantaneous speed, death and injury, prevention, accidental damage, weather conditions, total cause, approximate location, type of collision, lighting, collision time, severity of collision, how land productivity, cultural change , Economic and social conditions, income generation, job creation, the role of transportation in the development of national and regional development, social creation	Acci-dents	(Bardal & Jørgensen, 2017), (Li et al., 2018), (Berg et al., 2016), (Deb & Liew, 2019), (Mitra & Washington, 2007), (Chin & Quddus, 2003), (Chu et al., 2019), (Kim & Yamashita, 2002), Haque et al., 2010), (Kitamura et al., 2018), (Xu et al., 2018), (Másilková, 2017)

prioritized and categorized by the green supply chain goal in mind.

According to the results of the literature review studies and articles, if the factors involved in transportation in the categories of human factors, vehicles, infrastructure, laws and regulations, economic factors and approaches and accidents are separated, the set of components related to infrastructure and accidents, some of them are according to the Table 1.

1. Research methodology

This study method is an observational method where we studied research background and we had a quantitative analysis by using questionaries and interviews. After assembling all related components, the fuzzy AHP approach was used to determine the main components. The effective factors in vehicle accidents were classified into four groups of motive, traffic function, incident details and accident prevention. Infrastructure components were also categorized into four categories that can be called the four sub-components: Roadways, Base preparations, Yards and stations and Development. The priority of each component is determined by the TOPSIS method in the Table 2. It is inevitable that every researcher has some limitations in the study and this study have the same condition. One of the main problems was that the participants in this study were selected randomly and they have some ideas based on their own experiences and they could be not having the same answers about questions. So, including participants from different cities and roads would be more optimal though it needs more time and cost. Also, another limitation of this study is about time duration which has been done in a limited time span. Although this study results could be different over time.

Table 2. Factors and components rationg. Distance size for the ideal negative/positive solution

Ci	D.s. Negative	D.s. positive	Components	Rating	Factors
0.573270492	0.035	0.026	Pathways	1	Roadways
0.532158065	0.033	0.029	Highway	2	
0.52238806	0.035	0.032	Non-level intersection	3	
0.508574576	0.03	0.029	Overpass bridge	4	
0.508296721	0.031	0.03	Underpass bridge	5	
0.490909091	0.027	0.028	Middle road	6	
0.483333333	0.029	0.031	Walkway	7	
0.457333333	0.022	0.026	Pedestrian bridge	8	
0.418181818	0.023	0.032	Turnway	9	
0.55	0.044	0.036	Build and development	1	Base preparations
0.544303797	0.043	0.036	Installations	2	
0.536231884	0.037	0.032	Improvement of pathways	3	
0.514705882	0.035	0.033	Communication network	4	
0.507042254	0.036	0.035	Maintenance of pathways	5	
0.506493506	0.039	0.038	Cars standard	6	
0.485294118	0.033	0.035	Stations	7	
0.484375	0.032	0.033	Bicycle rent	8	
0.439393939	0.031	0.037	Street capacity	9	
0.547169811	0.029	0.034	Bike path	10	
0.533333333	0.028	0.031	Signs	11	

End of Table 2

Ci	D.s. Negative	D.s. positive	Components	Rating	Factors
0.528769149	0.027	0.034	Linearization	12	
0.505926498	0.026	0.026	Stop parkings	13	
0.449987021	0.024	0.034	Panels	14	
0.429393939	0.023	0.037	Safety fances	15	
0.422475283	0.022	0.028	Street length or percentage of city	16	
0.41895922	0.020	0.029	Field entrance width	17	
0.40555555	0.017	0.032	square	18	
0.558139535	0.024	0.019	Workplace	1	Station and yard
0.552631579	0.021	0.017	Parking	2	
0.54	0.027	0.023	Educational yards	3	
0.523809524	0.022	0.02	Commercial	4	
0.485714286	0.017	0.018	Terminal	6	
0.479166667	0.023	0.025	Health care places	7	
0.469527381	0.019	0.024	Airport	8	
0.427738731	0.018	0.027	Customs	9	
0.5625	0.018	0.014	Transportation capacity	1	Development
0.516129032	0.016	0.015	Parking lot	2	
0.487804878	0.02	0.021	Pass lines	3	
0.451612903	0.014	0.017	Geometric properties	4	
0.441176471	0.015	0.019	Waypath width	5	
0.117647059	0.024	0.18	Road middle position	6	
0.490566038	0.026	0.027	Roadbed type	7	
0.477272727	0.021	0.023	Available lengths	8	
0.463414634	0.019	0.022	Pathway slope	9	
0.42	0.021	0.029	Rider width	10	

In order to study the impact of infrastructure and its factors on accidents, a conceptual model was used as shown in Figure 1. Then, the factor analysis model was implemented on the components and sub-components of the dependent variable of the crashes in Table 3.

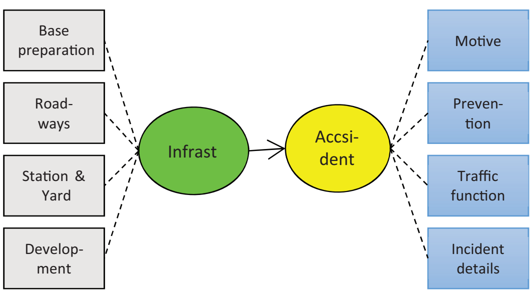

Figure 1. Conceptual model

Table 3. Results of the confirmatory factor analysis on fitting the model of the impact of infrastructure on crashes based on standardized coefficients and meaningful coefficients

M.C.	S.C.		
5.98	0.58	Human	Motive
6.25	0.63	Infrastructure	
7.43	0.75	Lighting	
7.52	0.50	Engineering	
7.69	0.66	Space and generalization	
6.54	0.69	Vehicles	
6.23	0.73	Speed	
3.98	0.77	Economic situation	Traffic function
3.90	0.54	Convenience facility	
3.58	0.59	Speed rate	
4.56	0.53	Comfort	
4.98	0.73	Mobility	
4.70	0.77	Safety	
4.38	0.54	Passenger safety	
5.38	0.58	Sharing	
7.38	0.60	Work distance	
3.20	0.61	Transport in development	
7.10	0.63	Vehicle	Incident details
10.51	0.70	Accident damage	
12.20	0.75	Payment and expenses	
12.78	0.74	Average speed	
16.45	0.69	Death and injury	
17.25	0.39	Severity	
18.25	0.80	Accident time	
19.54	0.87	Location	
16.24	0.83	Weather conditions	
17.77	0.68	Main cause	
16.64	0.75	Type of accident	
19.25	0.79	Tules	Prevention
7.89	0.76	Organization and organs	
6.99	0.78	Traffic info	
7.28	0.69	ICT planning and routing	
6.19	0.63	Law enforcement control	
5.98	0.85	Education	
6.87	0.64	Accident insurance	
7.89	0.52	Job offers	
6.99	0.70	Social situation	
7.58	0.74	Land use	
8.50	0.77	Cultural developments	
10.25	0.70	Forbidding	

The results of the confirmatory factor analysis indicate that the data fitting model is desirable, since all obtained values are higher than 0.3 and significant numbers are more than 1.96 as shown in Table 4.

The above table information shows that the KMO index is 0.851 at the desired level. The KMO index is closer to 1. Suggests that there is "better sampling" in selecting reagents (obvious variables). The cut-off point for the size of the KMO index for the sampling adequacy is 0.6. That is, if the KMO index is higher than 0.6, the sampling criterion is estimated and if it is lower than 0.6, then it means that the criterion of "sampling adequacy" is not estimated (Table 5).

Table 4. Sampling Qualification Test

.851	Keizer Meyer Ekline Test
3.661E3	Bartlett Test
153	Degrees of freedom
.000	The significance level

Table 5. Shows the results of anecdotal analysis of the impact of infrastructure on crashes based on standardized coefficients and meaningful coefficients

Meaningful coefficients	Standardized coefficients	The dependent variable	independent variable
6.76	0.43	Accidents	Infrastructure
40.19	0.63	Base preparation	
20.66	0.53	roads	
43.22	0.67	Stations	
6.63	0.66	Development of passages	
7.16	0.68	Motive	
8.00	0.55	Traffic function	
8.61	0.50	Accident details	
7.87	0.69	Arrangements	

Table 6. Goodness indicators fit of infrastructure model on accident based on standardized coefficients of meaningful conditions

Fitness Index	Acceptable values	Calculated values
CMIN/DF	<3	1.85
SRMR	<0.05	0.04
RMSEA	<0.08	0.06
GFI	>0.9	0.94
AGFI	>0.9	0.96
NFI	>0.9	0.97
NNFI	>0.9	0.96
IFI	>0.9	0.98

Two important model fitting models (RMSEA) and (CMIN / DFx ^ 2/df) are in Table 6. The value (CMIN / DFx ^ 2/df) is 2.25. If the value (CMIN / DFx ^ 2/df) is smaller than the number 3, the model has a better fit. The RMSEA index is the mean square error of the model, which is estimated to be 0.07. This index is based on model errors. The permissible limit of this value is 0.88, that is, the values below 0.08 are acceptable and also below 0.05 is very good. Other indicators are also within acceptable limits. Therefore, it can be said that the model has a suitable fit.

Table 7. Results of structural equations on the effect of infrastructure components on the accident based on standardized coefficients of meaningful conditions

Meaningful conditions	Standardized coefficients	The dependent variable	Independent variable
2.22	−0.64	Accident	Roadways
3.64	−0.58	Accident	Base preparation
5.00	−0.63	Accident	Stations and yards
5.25	−0.74	Accident	Development

The Table 7 shows that the development of infrastructure components has a significant negative impact on accidents. This means that with the development of each component of the infrastructure, the number of accidents will decrease. The strength of this relationship is also strong and the measured value is less than 0.05, and this relationship is statistically confirmed.

2. Findings and discussion

According to the results of the research, the transport roadways affect the motive of accidents in infrastructure problems related to lack of conformity, lack of proper roadways or incorrect usage, technical defects, lighting systems, etc. Also, the lack of pedestrian walkways and pedestrian bridges in certain places can cause human traffic accidents.

Crash preventions such as planning and routing should be done according to the roadway. Traffic routes have a significant impact on traffic planning and the adoption of decisions and rules and traffic approaches. According to the results of the research, the availability of appropriate ways like overpass and underpass bridges, highways, pedestrians, middle ways, pedestrian bridges could play a role in the implementation of accident prevention plans. As the existence of appropriate roadways and routes, creates the main traffic function for the mobility of vehicles. The lack of proper roads or poorly designed ones will affect car crash details such as traffic safety, distance between stations, travel possibilities, convenience facilities and speed. The research results confirmed this issue.

According to studies, crashes in high-speed traffic routes lead to accidents with more severe fatal and financial losses. However, the design of high-quality roads leads to reduced accidents. According to the results of the research, the transport roadways have a significant relationship with the accident details. The road quality, road type, approximate location of the accident and the permitted speed of the road in different weather conditions can be effective in the incidence and severity of the accident.

Stations and yards, which are important to have green supply chain, have a significant impact on the motive, traffic function, accidental details and accident prevention measures.

Workplaces, schools, universities, hospitals and markets are among the places where everyday people come to these places, and include daily share of traffic. Also, airports, terminals, ports, customs are the point of connecting various types of transportation to urban transport. Parking lots and stations are considered as the starting point and the end of each trip in transit.

According to the survey carried out in the present study, the locations and transport stations can contribute to the crash due to space. According to field studies, most of the crashes occurred near any of these crowded and busy places had human origin.

Traffic planning, including the creation of parking lots and stations, the location of the establishment of hospitals, airports and passenger terminals, the creation of local markets to reduce traffic, the use of traffic policies and vehicles, all and all of the factors that will have a role at reduce traffic and crashes. According to the results of the analysis of the research, spatial infrastructure and stations are involved in the implementation of measures and policies for preventing accidents.

Commercial and educational places are among the main transport drivers that can lead to urban accidents. Transportation of goods to markets and marketplaces, as well as the movement of workers and employee to the workplace and the passage to schools and universities, are the main drivers of urban transport. The results of this study clarify the impact of these places on the crash motive.

According to the results of the research, busy and crowded places increase the possibility of traffic, and these places and stations have a significant effect on the accident information. The location of most human crashes is located in these areas.

Development roadways has a significant impact on accident prevention measures. However, there is no meaningful impact on accident details, traffic function and motive accident.

The author believes, failure to identify and establish the necessary passages on time in the required areas can create irreparable risks specially in food supply chain system. The results of this study showed that the construction of passages in the event of delay in construction, engineering weakness, design weakness, lack of proper specification and poor construction could be the cause of the accident.

Creating passages is one of the most important ways to build transport infrastructure and develop it. Available tramway length, tread width, tilt slope, number of passage lines, displacement capacity of passengers, geometric characteristics and tensile conditions are considered as urban road profiles, which should be calculated and constructed when creating passages.

Based on author findings, crash avoidance measures such as planning and routing should be done according to the roadway. Traffic routes have a significant impact on traffic planning and the adoption of decisions and rules and traffic approaches. Creation of passages is a means of transport development, which can play a major role in planning and routing accident prevention. According to the results of the research, the creation of routes has direct impact on accident prevention and is one of the main policies that can lead to reduced fatal crashes.

Deciding on the characteristics and details of urban roads in its design can affect on crash motives. The results indicate the impact of creating new passageways with features such as proportional passenger displacement capacity, length and width of streets and the number of planned routes, on traffic incentives such as traffic safety, velocity, distance to destination and convenience facilities.

Although the location of the accident may indicate the need to create new passages or provide solutions to deal with the most striking areas, but according to the results of the research, the creation of passages does not have a significant relationship with the occurrence of accidents.

Therefore, Infrastructure base preparation have a significant impact on the motive of accidents, traffic function, incident details and accident prevention.

It is suggested to focus on Infrastructure base preparation such as the creation and improvement of passages, the establishment of installations and fences, maintenance, use of equipment and supplies, street marking, the use of signs on the roads, equipping appropriate stops, creating bicycle path and etc. that can promote transportation and improve traffic.

According to the results, infrastructure measures have a significant impact on the cause of accidents. Previous studies also indicate that many urban accidents, in addition to other causes, such as speed and human factors, have been related to infrastructure and environmental problems. The statistics show that the municipal administration annually devotes a lot to the costs of not providing the necessary transportation infrastructure and blame for accidents.

Infrastructure measures can be considered as an essential component of prevention measures. Establishing and improving the condition of roads, maintaining, improving roads and creating parking lots and parking cost are some of the most important traffic avoidance policies.

It seems improving the condition of roads, creating highway bypasses, direct access to different parts of the city, the availability of parking lots and stations in different parts of the city, providing convenience and ease of travel for the excursion motive of numerous city trips. The results of the research also indicate the impact of infrastructure measures on traffic drivers and increased supply chain transportation.

The weakness of the infrastructure and its lack of management and proper operation can increase the likelihood of a collision. The result of the research indicates the impact of infrastructure measures on the occurrence of collisions. The relationship between these two variables is an opposite relationship.

Conclusions

Most of daily transports are business related movements such as employers move from home to work and work to home, market, grocery shopping, delivery, distribution, and supply chain. In this process green supply chain trying to do many attempts to provide a healthy, environmentally friendly condition but traffic accidents can ruin all these attempts. Therefore, it is important to study in this area and find some solutions in this issue. Based on research findings, infrastructure improvements and the establishment of linkages between locations and phenomena, in addition to providing access and improving transport activities, facilitate the necessity and basis for trade, business, traffic, and reduce the number of accidents.

There are many approaches and aspects providing solutions to traffic issue but this research focused on infrastructure and its effects on traffic accidents which makes critical issues regarding supply chain specially food products and based on results observing hierarchy of passageways, determining and choosing transversal sections suitable for passages (proportional to the traffic volume which it will flow in), designing the correct intersections and observing the necessary distances, and taking into account the necessary standards for the production of vehicles and the space required for residential traffic in design, have important implications for urban transport, and, as a result, reduce traffic congestion, preventing irreparable loss of food products supply, missing business meetings, and economic crashes.

Suggestions for further research

Based on the findings and results of this study, the following issues are suggested for future researchers:

- The effect of transport infrastructure on factors affecting traffic accidents on country supply chain;
- Localization and update in different places with different policy, cultures roads in other countries;
- Comparing the effect of infrastructure elements in different countries;
- Studying the impact of other elements on traffic accidents.

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