

Appraisal of Traffic Jam Problem at Railway Junction with Elhaj Yousif Street, Khartoum Bahri Town, The Republic of Sudan (2015)

Dr. Abdalla Babikir Abdelnabi¹, Hana Ibrahim Mohammed Elhaj², Shazalia Mustafa Mohammed Mustafa³ and Prof. Dr. Abdelhalim Awad Abdelhalim⁴

¹Faculty of Engineering, Alzaeem Alzahri University
abdallahmustafa866@gmail.com

^{2,3}Department of Urban Planning, Graduate Studies, Alzaeem Alzahri University
²hano19903@hotmail.com and ³dewdrops362@gmail.com

⁴Dept. of Arch. and Planning, Emirates College for Sciences and Technology
halimconsult2001@hotmail.com

Publishing Date: October 15, 2015

Abstract

The problem of traffic jam and lack of traffic's flow draws attention of many respective authorities; in addition to waste of time and fuel. The problem of traffic is considered crucial problem; therefore, we are required to find out solutions for this problem. This paper places emphasis on studying the most important problems related to railway junction (look at map No.1) in Bahri town whereas traffic problems arise due to narrowness of ElhajYousif Street entrance which causes traffic jam at entrance of road ;particularly at rush hours which resulted in lack of traffic flow thus short term and long term solutions have been proposed.

Keywords: *Railway Junction, Traffic Jam Problem, Elhaj Yousif Street.*

Introduction:

Roads and their junctions are considered a measure for the standard of urbanization in any country. The development in any country can be measured by the number of roads and flow of traffic in junctions since traffic jam represents one of the acute problems that face contemporary cities today.

No doubt that the steady increase in population and number of motor cars were a result for the constructional development in roads. Despite that fact that these roads provided comfortable services for communities of these towns but as the years passed by these roads began to experience remarkable traffic jam which causes delays and keeps traffic getting stuck.

Methodology of Study:

The study used the descriptive-analytical method well as asset of computer programs, references and interviews.

Definition of Junction:-

It is an area that is formed by the intersection of two or more junctions. It is used to turn easily direction of traffic. Junction shapes an essential part of the road since efficiency, safety, speed, cost of operation and road safety rely on junctions.

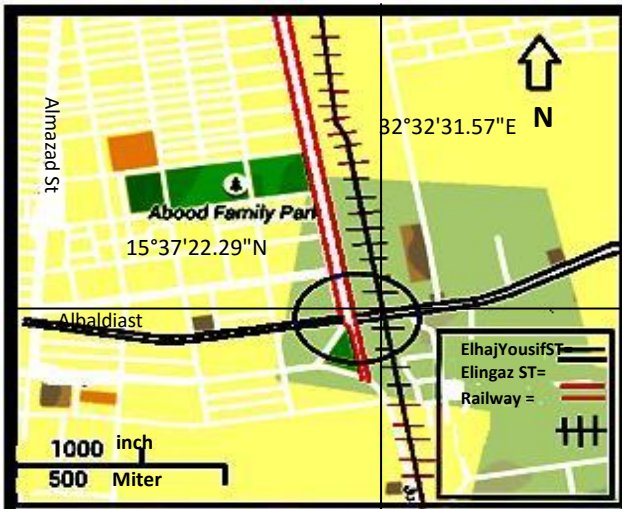
Factors that influence in crossroads design:

1. Traffic of pedestrians.
2. Region topography.
3. Capacity of traffic at each flange of junction.
4. State of traffic at junction.
5. Nature of traffic of vehicles at junction and its flange.
6. The significance of junctions.
7. Designed speed for junctions
8. When traffic capacity exceeds at a certain junction in a road it produces the so-called traffic congestion or bottleneck (study region).

Analysis and Discussion:

According to study and analysis of traffic in the region of study, a number of tracks and traffic directions were identified.

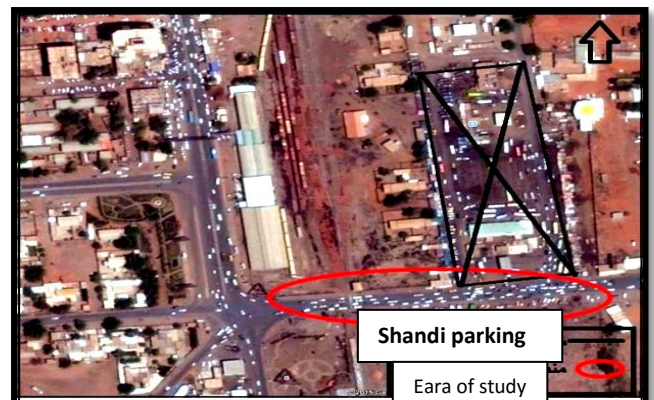
1. EL haj Yousif road is situated in the southern part of junction and it includes two tracks, with 8 meters in width. No traffic is land was found in
2. The middle (look at map No.1).
3. Railway is situated in the south of junction and passes by ElhajYousif Street. It does not meet international standards (look at map No.1).
4. Elingaz road is situated in the north of junction where there are two districts; each district has two tracks. The width of district is 6.00 meters and Central traffic Island with 1.00 meter in width (look at map No.1).
5. The significance of Railway junction reflects on that it is a link between Bahri and East Nile. Accordingly there is an increase in a daily traffic which crosses through this junction. From this point, we decided to study this junction to raise service level in it and make traffic flow easily users.



Map No.(1) explains parts of study region
 Source: researchers by using Google map

Conclusions:

1. There is traffic congestion.
2. Lack of Central traffic Island (look at photo No.1).
3. The existence of Shandi station nearby the junction causes traffic frequently congestions (look at photo No.(1) & (4)).
4. The existence of railway nearby junction considered to be as a hinder for traffic as a result of passing trains (look at photo No. (2)).
5. Growing rate of noise and pollution.
6. The width of road is inappropriate to heavy traffic and number of motors (look at photo No. (2)).
7. Interference of traffic with pedestrians.
8. Lack of traffic sign boards in roads.
9. Negligence of traffic rules and laws by drivers and pedestrians.
10. The number of motors is inappropriate to capacity of road (look at photo No. (3)).
11. Lack of side-walks and light signs.



Aero-photo No.(1) shows Shandi Station & region of study. Source: researchers by using Google Earth



Photo No. (2) shows trains hinder traffic
 Source: Researchers



Photo No.(3) shows traffic overlapping comparing with traffic capacity. Source: Researchers



Photo No.(4) shows how Shandi Station hides traffic Source: Researchers



Photo No.(5) shows central traffic island Source: Researchers

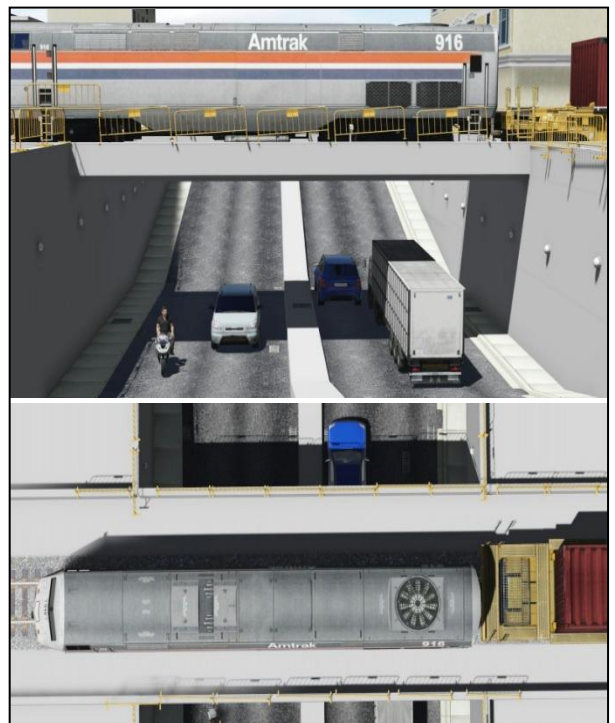


Photo No.(6) shows proposed tunnel Source: Researchers

Recommendations:

1. Expand the road and cover pot-holes with tar.
2. Create a central traffic island to organize tracks and traffic at the road (look at photo No. (1)).
3. Transfer or removal of Shandi station (look at photo No. (1)) since it is considered as one of the vital problems in the junction and it creates a lot of traffic congestions.
4. Build a tunnel to cut off vehicles traffic from trains for the flow of traffic (look at photo(6)).

Sum up:

The study concluded by a number of recommendations which could participate in solving traffic problems existing in similar roads and junctions which could save time and effort.

References

- [1] Traffic Congestion (Technical Solutions) /Dr. Ali bin MasoudAlgamidi/ University of King Saud, 1421H.
- [2] Interviews (Interviews with traffic police and some users of road) May 2105.
- [3] Evaluation and Development of some junctions in town of Elhila / Dr. AbdElridha Ibrahim Alkramin, April 2015.
- [4] Handbook of Designing Side-walks, Traffic islands for Streets and roads KSA- Ministry of Locality & Village Affairs- Ministry's Agency of Technical Affairs.
- [5] Work out traffic jam in tunnel junction intersects with Eltaybia Street (Applied Study)/Dr. Abd Allah Babiker Abdualnabbi etal., March 2015.
- [6] Mini-Study for Traffic in the Two Junctions at the Beginning of EbaedKatim Street form Nothern Part/Eng. Wafa Aldaw Nisr Eldeen Alshreef, 2014.
- [7] A set of Computer Programs (Google Earth-3DMAX-Google
- [8] Map/en.wikipedia.org/wiki/Intersection_ (road).