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A Review on Junction Redevelopment for Traffic Congested Area

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Abstract — *Now a days, the heavier traffic congestions on the roads and intersections have resulted due to intense growth of vehicles. The condition is even worse during the traffic peak time. Vehicle crashes are a major concern in rapidly growing the urban areas. If the intersection is not well designed, it will increase the travel time of vehicles and also cause more traffic accidents. Besides, if the design of intersection is not proper, road surface deterioration will be more at the intersection area due to many factors such as frequent start stop slow speed and so on. Therefore, it becomes necessary to design the intersection appropriately. The WHO estimates reported almost 1.3 million people die each year in road accident. So this throws light on the magnitude of the road safety and also indicates requirements of necessary improvements. As per recent scenario Udhana Darwaja will be taken as study area and work comprises of geometric improvement at the Udhana Darwaja intersection. The purpose of this study is to make and attempt towards road safety for user and the need for design of an intersection.*

Key words-*Junction redevelopment, Traffic management, Traffic safety, Reduce accidents, Passenger car uint.*

I. INTRODUCTION

Surat is a second largest city in the Gujarat with the population about over 50 lacks. Traffic forecast are major determinant of transportation policies. The number of vehicles registered as per the commissionerate of transport in 2011-12 of Non-transport Vehicle were 1,26,35,743 transport vehicle were 17,77,974 and the total sum of the vehicle registered is 1,44,13,717. Many researchers have shown that the routine obstruction and traffic jam does not occur on the road. There is constituted of network. City intersection is the cardinal interchange of people and cars. Because of the traffic flow meet, mingle and disparate at the intersection, in extension to the factors such as non-mixing machines, complicated traffic intersection features make it simple to become puzzled and sustained traffic accident-prone and minimizes the capacity of the road network, to become the hindrance of the city roads. So the congestion phenomenon is the intersection of the core sticking point. For urban roads, the intersection is an crucial part of the urban road network, connecting to the road in all the directions at the intersection, so there is the intersection to enhance the flexibility and accessibility of road transport, thereby it has increased the importance of the road network and vitalised the traffic function. The importance of unbiased and accurate traffic forecast is necessary. Redevelopment is carry out of junction due to heavy traffic conditions, high rate of accidents, safety of pedestrians, etc. An absence of proper development of junction, create heavy traffic conditions. Find out traffic congestion and analysis of traffic and also will take the surveys for solving out traffic problems. In other cases traffic growth is undesirable such as in urban areas. Proper design of intersection of a road and effectively organize transportation is favourable for full utilization of the intersection of time and space resources, overcome the conflict point of traffic, increase the safety of driver, ti improve the capacity of the intersection ensuring smooth traffic. An underestimation of demand could represent a shorter period of relief from congestion, so that required to identify the numerous uses of different vehicles during peak hours as well as the rest of the days so that the data related to junction redevelopment will be carried out. Benefits of intersection is helpful for reduce the traffic. Rotary is provided to minimize the speed of vehicles. The roundabout is one of the safe an intersection. It is recently use in many country.

II. PROBLEMS FACED DURING TRAFFIC MANAGEMENT

- **Traffic congestion-**It is a condition on road networks that occurs as use increases, and is characterized by slower speeds, longer trip times, and increased vehicular queuing. The most common example is the physical use of roads by vehicles. When traffic demand is great enough that the interaction between vehicles slows the speed of the traffic stream, this results in some congestion. As demand approaches the capacity of a road (or of the intersections along the road), extreme traffic congestion sets in. When vehicles are fully stopped for periods of time, this is colloquially known as a traffic jam or traffic snarl-up. Traffic congestion can lead to drivers becoming frustrated and engaging in road rage.

- **Capacity Constraint-**Most of the roads have Capacity Constraint: the width or road especially in inner built up areas, inner cordon roads and even at some points the regional and outer cordon roads have lesser width/related infrastructure in context to the traffic volume they have to bear.

- **Inadequate Road hierarchy-**Road hierarchy is not as per the acceptable level, so the traffic movement is not smooth, the primary corridors, secondary corridors do not follow the norms.

- **Mixed Traffic-**The most of the roads in the city are subjected to mixed kind of traffic , the slow ,very slow, fast moving traffic move on the same roads /traffic corridors, due to which the average speed of city is lowered down.

- **Traffic management-**The city has very weak traffic management; the traffic is regulated by traffic police, which is mostly untrained/not properly trained in traffic affairs, which fails in regulating traffic.

- **Absence of Traffic Management Plan-**No comprehensive Traffic Management Plan is prepared for the City, the only methodology adopted is the traffic plan by police which is done in non technical way.

- **Lack of safety-**Proper considerations have not been kept for safety of people on the roads, especially for pedestrians, cyclists and people moving on two wheelers. Speed controls, use of helmet are not in practice, the traffic violators are hardly panelized.

- **Enforcement of Traffic rules-**The traffic rules are not properly enforced, the reason being the lack of willingness in administration and extremely less and untrained manpower deputed for this purpose.

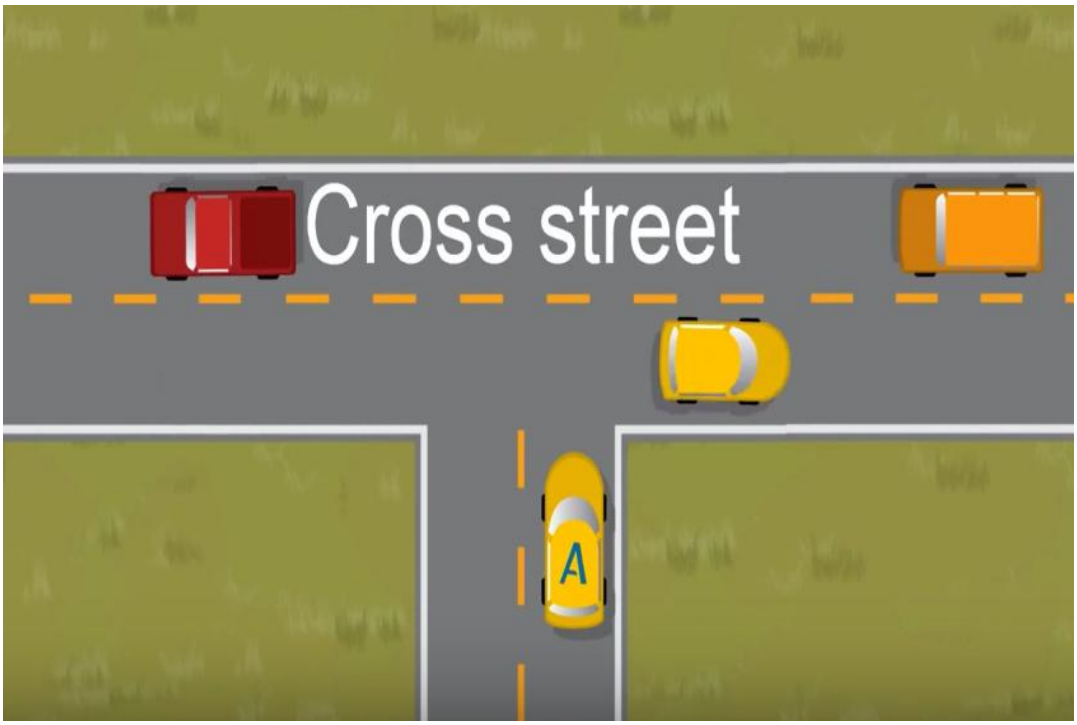
- **Problem of informal marketing on road side-**Hawkers, road side vendors, informal markets: Hawkers, road side vendors, informal squatting of vegetable /grocery item vendors are a serious problem in the city, affecting the road efficiency.

III. NEED OF STUDY

Traffic studies are being carried out to analyze the traffic characteristics. It helps in geometric design and traffic control, which provides safe and efficient traffic movement. The traffic studies for collection of data are known as traffic census. Traffic data analysis for finding out conflict area and minimize the conflict area. Provide diversion for smooth moving of traffic.

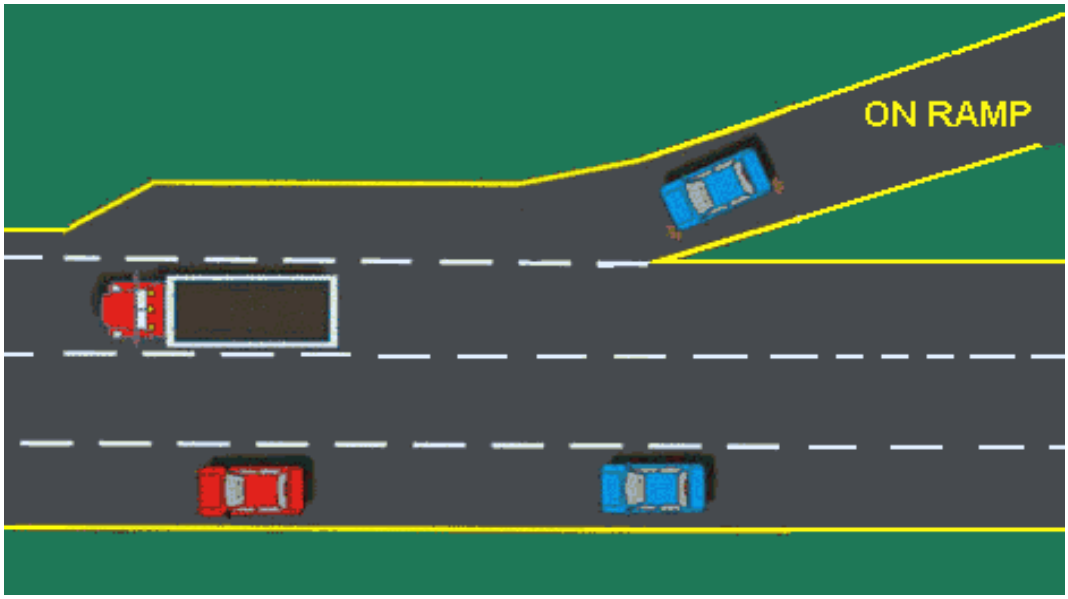
IV. TYPE OF INTERSECTION

T Intersection-A T junction (or T intersection) has 3 arms, but one of the arms is generally a minor road connecting to larger road.



Y Intersection-A 3-way junction (or 3-way intersection) is a type of road intersection with three arms. A Y junction (or Y intersection) generally has 3 arms of equal size.

On Ramp Intersection-Ramp which merges on the mainline roadway is known as on ramp intersection.



Off Ramp Intersection-Ramp which merges from mainline roadway is known as off ramp intersection.

Roundabou-A modern roundabout is a circular intersection where drivers travel counterclockwise around a center island. There are no traffic signals or stop signs in a modern roundabout. Drivers yield at entry to traffic in the roundabout, then enter the intersection and exit at their desired street.

IV. LITERATURE REVIEW

TITLE	AUTHER NAME	CONCLUSION
Intersection Design Tool to Aid Alternative Evaluation	1.Nikiforos Stamatiadis 2.Adam Kirk 3.Nithin Agarwal	Intersection are critical component of the road way system and frequently act as choke points on the transportation system .
New Concept of Traffic Rotary Design at Road Intersections	1.S.K. Mahajan 2.Anshul Umadekar 3.Kruti Jethwa	A new geometric concept is discuss to design rotaries at intersection of roads, the design requires less data observation in the field.
Sustainable Traffic Improvement for Urban Road Intersections of Developing Countries: A Case Study of Ettumanoor, India	1. Geethu Lal 2. Divya L.G. 3. Nithin K.J. 4. Susan Mathew 5. Bennet Kuriakose	To reduce traffic congestion on road, the necessary step taken such as planning of intersection, parking, traffic movement as well as proper signalisation are suggested.
Development of Saturation Flow Model at Signalized Intersection for Heterogeneous Traffic	1. Subhash Chand 2. Neelam Jain Gupta 3. S. Velmurugan	To Calculate the PCU and saturation flow in accordance with the present day traffic flow conditions developed.
Traffic Congestion on Roads	1. Dr. Tripta Goyal 2. Dinesh Kataria	The Choice between a roundabout or a signal controlled intersection should be made in the basis of extensive field studies.

V. CONCLUSION

Intersection are critical part of roadway system. Intersection design requires an objective methodology to identify the most appropriate solution that meets the purpose and need of the project. All traffic proceeds simultaneously and continue at uniform speed. Rotary provides easy movement for right turn traffic.

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