

Evaluation of Traffic Improvement Strategy at Balva to Mansa Highway

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Abstract- Rapid Growth of traffic in Urban As Well As in Rural Areas. It Is Managed Conventionally By Providing Signals, Widening Of Road, Intersection, Rotary. Traffic Congestion Is Improving Day By Day At Balva Chowkdi (SH 71) To Connect Mansa(y Intersection) Sh 138. Balva Chowkdi Is Facing Problem of Right-turn Movement With Heavy Vehicle Like Truck And Buses About 3 Axle Or Above. At The Mansa (y Intersection). There Is High Congestion Of Traffic Due To Heavy Vehicle And Also Facing Problem Of Merging And Diverging. As A Result Problem Like Delay, High Congestion, Increasing Accident Rate, Chance Of Miss Behave, Increase In Environmental Pollution. The purpose of this study is give Suggestion to Solve the above problems with Safe, efficient & easy movement.

Index Terms- Mansa (y Intersection) and Balva Chowkdi (+ intersection), High Traffic Congestion, Traffic Volume Count Survey, Passenger Car Unit, ON Street Parking Survey.

I. INTRODUCTION

Road traffic problems are one of the most important problems prevailing in the urban cities and villages. The development of a city or town leads to the growth of traffic which is directly linked with increased number of accidents and fatalities and traffic congestion. Spending hours in traffic jam has become part and parcel of metropolitan lifestyle leading to health and environmental hazards. There could be two approaches to solve these problems, first and the most common solution is to come up with infrastructure involving wider roads, flyovers bypasses, expressways etc. Second approach is to manage traffic with existing safe infrastructure with the use of technology and by involving computers in

the process. Recently, there are several studies and practice for observing traffic flow and providing information on traffic condition. These are usually done by counting the vehicles that pass particular locations using sensing gates that are usually placed on the arterial roads. The Inhabitants congregated in large urban areas lead to sometimes intolerable levels of traffic congestion on urban streets and thoroughfares. Modern traffic management depends highly on the efficiency of mechanisms, such as the controlled intersection and multi-lane roundabouts. Rotary intersections or roundabouts are special form of at-grade intersections laid out for the movement of traffic in one direction around a central traffic island. Research and development is needed to document the existence of the rotaries over the heavy loaded roads and highway networks to substantially reduce the fatal and injury crashes. For heterogeneous traffic on National Highway it is necessary to study efficiency of Rotary. Design of Rotary must satisfy the standards of IRC.

II. STUDY AREA

Balva is a village of Mansa taluka in Gandhinagar district of Gujarat, balva is having population of about 5900 (2011) and Mansa having 82,956(2011). Mansa city is largest as compared to other taluka of Gandhinagar. Mansa is well connected by state highways and bus station. The city transportation is mainly dependent on roadway system. Vehicle growth has been rapid. The network is expressing heavy traffic congestion, noise pollution and air pollution



Fig.1 Study Area Location of Balva and Mansa Intersection

Balva and Mansa are connected by two lane road of about 7 km. Balva intersection connect the Gandhinagar to Mansa highway, NH 38, and Balva village. Balva and Mansa intersection are facing problem of high congestion during pick time. Due to high congestion delay in journey time, noise and air pollution problems are create. There is need of some strategy to apply for the solution of traffic congestion.



Fig.2 Merging and Diverging Issue at Mansa (Y) Intersection



Fig.3 Right Turn Movement Issue at Balva Intersection

III. TRAFFIC VOLUME COUNT SURVEY

The main purposes of traffic survey are: traffic monitoring, traffic control and management, traffic enforcement, traffic forecasting, model calibration and validating. Traffic Volume Count Survey of peak hour (In Morning 9:00 am to 11:00am and Evening 3:30 pm to 6:30 pm) are carried out for three days. Each 15 minute are taken as one interval.

Table 1

TRAFFIC VOLUME COUNT SURVEY (TVC)	
DAY	PCU
DAY 1	16232.5
DAY 2	10881.5
DAY 3	12126.5

After collecting the TVC and comparing with the IRC recommendation. Road Design Capacity As Per (IRC 106-1990) table are given below. Traffic volume was not the actual problem. After that on street parking survey are carried out.

Table 2. Road Design Capacity As Per (IRC 106-1990)

Recommended design service volumes (PCUs per hour)				
Sr. No	Type Of Carriage way	Total design service volumes for different categories of urban roads		
		Arterial	Sub-arterial	Collector
1	2 lane (one way)	2400	1900	1400
2	2 lane (two way)	1500	1200	900
3	3 lane (one way)	3600	2900	2200
4	4 lane undivided (two way)	3000	2400	1800
5	4 lane divided (two way)	3600	2900	0
6	6 lane undivided (two way)	4800	3800	0
7	6 lane divided (two way)	5400	4300	0
8	8 lane divided (two way)	7200	0	0

IV. PARKING SURVEY

On street parking survey are carried out due to vehicle parked in prohibited area. Parking survey are carried out in 15 minute interval of peak hour in morning and evening for 2 days.

Table 3. Parking Survey data

Passenger Car Units	DAY 1	DAY 2
Mansa intersection to collage road	401	495
Mansa intersection to annpuma party plot	954	1317
Mansa intersection to unita temple	401	495
Total PCU	1756	2307

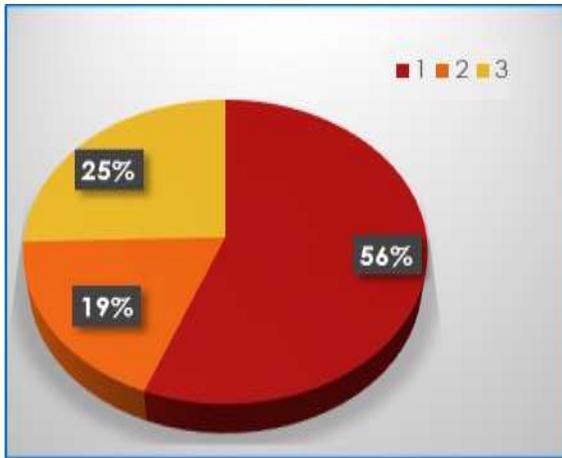


Fig.5 On street parking at Mansa (Y) intersection

Survey are carried out for two, three and four wheel vehicle.

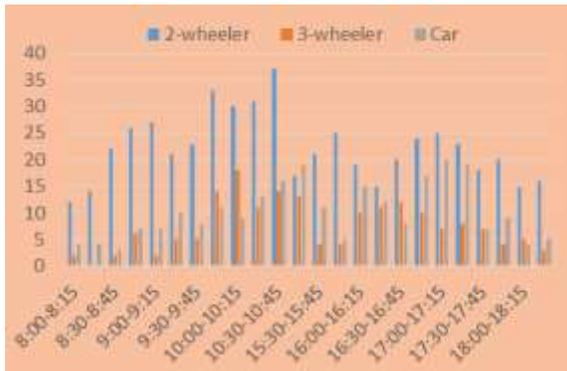


Fig 4.average density of vehicle parked on street

V. CONCLUSION

Traffic knowledge should be incurred in people. According to this study there are some steps taken to reduce the traffic problem. At Mansa intersection parking should be strictly prohibit or provide parking area to free up the space covered by parked vehicle. Avoid potholes, stripping, raveling etc. At Balva Chowkdi widening of road from intersection to 100m.

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