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Traffic Analysis by Level of Service in AkolaCity

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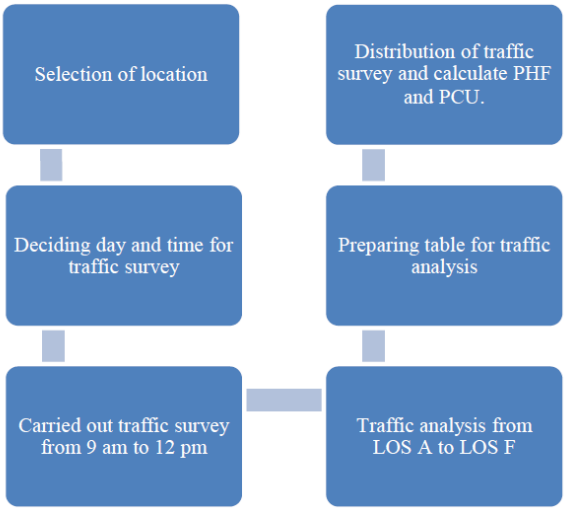
ABSTRACT:-The increasing number of vehicles due to the proportional increasing order of population day by day and a continuous development of modern society is a major concern in rising cities in rapidly developing countries like India .so it is very necessary to monitor traffic volume and also the quality of travelling supply termed as the level of service (LOS). Analysis of traffic volume can be also done by various methods but in this project traffic analysis is done by level of service method .By studying the traffic analysis by LOS from A to F we can determine how traffic is varied from time to time in a highly congested road in a different traffic flow condition. In traffic analysis certain types of mixed vehicles is calculated by passenger car unit and it plays very important role also peak hour factor plays important role in traffic analysis by LOS methods. In a congested road to understand that at what time traffic flow is maximum a level of service is distributed in A,BC,D,E and F. Different research program can be used in foreign countries but very less studies can be carried out in this selected topic in India. Nature of traffic flow in Akola city is heterogeneous or different mixed traffic are simplified by passenger car unit (PCU).LOS was calculated for both direction of roads at Unsignalized intersection .
According to PHF method and traffic counting method LOS can be determine .
KEYWORDS:- Passenger Car Unit(PCU) ,Level of service(LOS) , Traffic Volume , Peak hour factor(PHF) .

I. INTRODUCTION

Based on qualified congestion , level of service boundaries have redefined with five LOS in a stable flow zone and one LOS for unstable zone . Using congestion models developed on two road section. ,The limiting service volume for different traffic analysis have been calculated and having relation with variation in carriageway width. It has been shown that the quantified congestion can be used as tool for assessing the efficiency and estimating the benefits from additional traffic lane or level of demand management required for a desired LOS. This project study is an research of the behavior of different traffic flow in Akola city of Maharashtra. In this Level of service (LOS) was determined by traffic counting method and peak hour factor (PHF) method. LOS was calculated for both direction of roads at unsignalized intersection . By calculating level of service In a congested road I am able to understand that at what time traffic flow is maximum and create congestion that is in a level of service A,B,C,D,E or F . At what time traffic should smoothly move without congestion and what is the congestion time of M.G Road in Akola city, India .By understanding this we can find a way to reduce the traffic congestion and traffic flow should be smoothly move. A study was first developed by chisty ,Islam and mishuk to identify the existing level of service of road in Chittagong city. To calculate LOS , a traffic analysis was calculated to determine traffic volume ,flow , and speed of that existing road.

For this data of level of service a congested area should be selected so that proper study of traffic volume can be done. To study the traffic analysis by level of service by studying the traffic volume in a highly congested road and to determine the PCU and PHF LOS method is very effective . Traffic analysis by level of service at congested road at M.G. Road in Akola city in Maharashtra in India is carried out, At Unsignalized intersection . In this project I have to studying the traffic movement and level of service at highly congested road that is M.G.Road in Akola city . On the basis of that data I am understanding that how traffic create congestion and how it can be improved by studying LOS at that location .In this project I am also determine the PCU and PHF for that specific location .

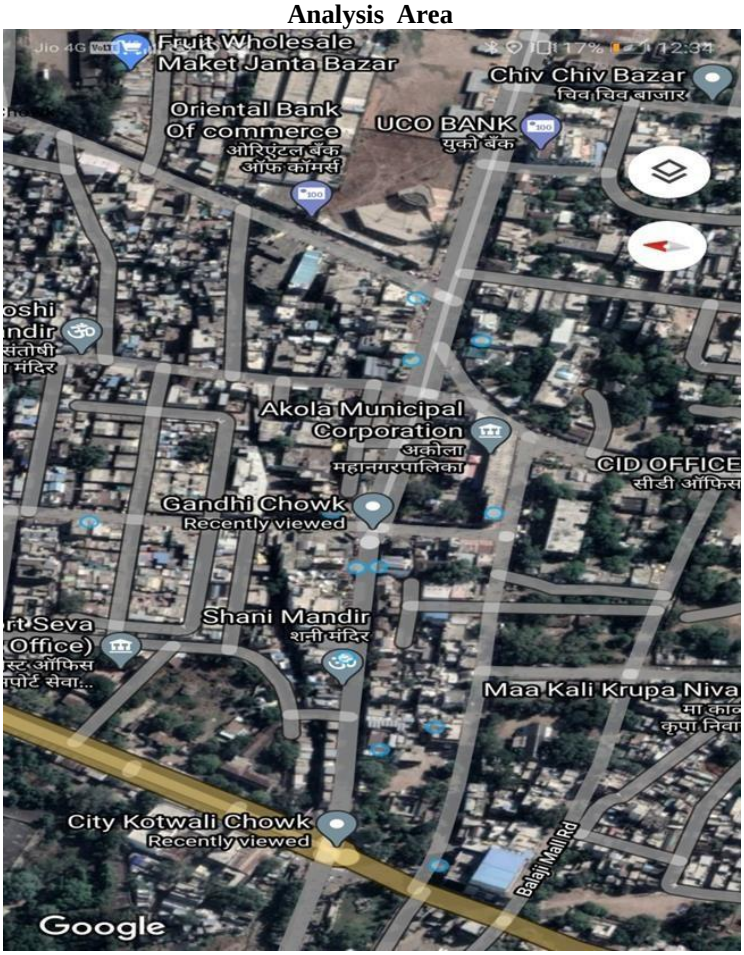
II. METHODOLOGY



A) Selection of location.
B) Deciding date and time for traffic survey ,generally it is on working day.
C) Carried out traffic survey for around 3 hr from morning9 am to 12 pm .
D) Distribution of traffic according to level of service from A to F.
E) All vehicle can be counted in traffic survey including car,bicycle,Auto rickshaws ,etc.
F) Preparing table for traffic vehicles as follows.
G) Calculation of PHF and PCU.

III. PERFORMANCE EVALUATION

Analysis Area



Pictures collected

LOS A

LOS B

LOS C

LOS D

LOS E

LOS F

Table.1. DATA COLLECTED

Time	Pedestrian	Cycle	Two wheeler	Car	Autorickshaws	Total (Excluding Pedestrian)	LOS
9 TO 9:15	7-8	1	19	1	3	24	A
9:15 TO 9:30	4	4	21	2	3	30	B
9:30 TO 9:45	11	9	23	2	7	41	C
9:45 TO 10	10	6	23	0	8	37	C
10 TO 10:15	8	4-5	27	4	10	45	D
10:15 TO 10:30	6-7	3	30	5	10	48	E
10:30 TO 10:45	3	0	29	3	10	42	D
10:45 TO 11	2	6	29	3	12	50	E
11 TO 11:15	6	11	31	1	11	53	F
11:15 TO 11:30	6	10	31	1	14	55	F
11:30 TO 11:45	3	11	29	0	8	48	C
11:45 TO 12	5	9	28	2	8	47	E

Table 2. PCU Calculation

Vehicle	**Cycle**	**Two wheeler**	**Car**	**Autorickshaw**	**Total**
Total Numbers	**64**	**320**	**24**	**104**	**520**
P.C.U Conversationfactor	**0.5**	**0.5**	**1**	**1**	**-**
Passenger car unit	**32**	**160**	**24**	**104**	**320**

Table 3. PHF Calculation

Time	Total Vehicle	15 min time interval	Hourly volume(V)	15 min volume	Highest 15 min volume (V15)	PHF For every 15 min
9 TO 10	132	9 TO 9:15	132	24	41	1.37
		9:15 TO 9:30		30		1.1
		9:30 TO 9:45		41		0.80
		9:45 TO 10		37		0.89
10 TO 11	185	10 TO 10:15	185	45	50	1.02
		10:15 TO 10:30		48		0.96

		10:30 TO 10:45		42		1.10
		10:45 TO 11		50		0.93
11 TO 12	203	11 TO 11:15	203	53	55	0.95
		11:15 TO 11:30		55		0.92
		11:30 TO 11:45		48		1.05
		11:45 TO 12		47		1.07

IV. CONCLUSION

- Thus by calculating level of service in congested road we can determine how traffic varies from time to time .
- By calculating PCU of that particular road we can assess traffic flow rate.
- Also by calculating PHF , we can found out the busiest 15 min of the rush hour.
- Past research indicated that PHF has strong impact on traffic analysis result.
- By determining level of service A to F , consistency of traffic measures.
- Level of service survey data can be used for the future road widening .
- Also for Traffic management is required or not is determined by this study.
- By determining this survey we can find the best travel time and alternate route is required for smooth movement of traffic for that particular location.

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