International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 09 Issue: 05 | May 2022 www.irjet.net p-ISSN: 2395-0072

Traffic Analysis at Kalady Junction and Provide Remedial Measures

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Abstract – *Transportation plays a major in our daily life. The movement of goods from one place to another and movement of a particular thing from one point to another. The mode of transportation are road, rail , water and air. The most common and cheapest method is road transportation. India has a network of over 6 million. It is the second largest road network in the world. India has composed of highly heterogeneous and consist of vehicles with widely varying static and dynamic attributes. Kalady is a place situated in kerala, Ernakulam. Traffic congestion occurring in the junction is too high the people travelling through this main central road take to much time to cross this junction . With the help of Q-GIS remedial measures are created for this problem.*

Key Words: Traffic volume , GIS

1.INTRODUCTION

1.1 General

Transportation plays a major role in our daily life. There are different modes of transportation. But most common method is road ways and it is more cheaper than other ways .There are different types of road in our country like national highways, main central road, village road. A better and efficient road transportation should required for the supporting the activity patterns in the cities, villages. The increase in the population and the increase in the number of vehicles lead to the traffic congestion in major cities during peak hours. This demand requires better planning process on the time road constructions.

Kalady is a census town located at Ernakulam district , kerala. It is a well known place as the birth of Adishakaracharya. It is situated near to Cochin international airport limited. It is only just 5 km away from Kalady.

Traffic volume is high on Kalady–Perumbavoor, Kalady-Angamaly, Kalady-Malayatoor, Kalady-Aluva roads during peak hours. Because of this traffic congestion on peak hours it creates more travel time.

Objectives

a) To evaluate traffic congestion.
b) To carry out classified traffic volume.
c) To determine flow rate in PCU value.
d) To provide remedial measure.

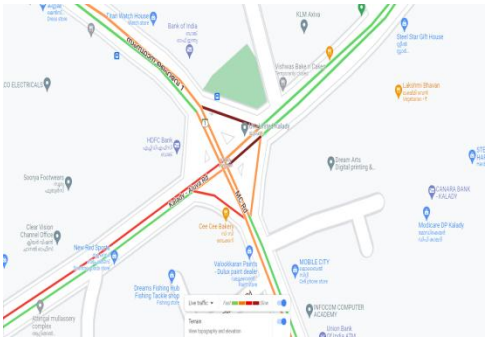
1.2. Scope

a) Reduce traffic volume
b) Save travel time

2. METHODOLOGY

a) Identify the problem: identifying the problem of a particular area.
b) Selection of site: selecting the site which the same problem is occurred.
c) Data collection: Through surveys by manually, videography
d) Data evaluation : Survey data are evaluate by certain parameters.(PCU factor)
e) Provide remedial measures: with the help of data evaluation. provide remedial measures with the help of GIS.

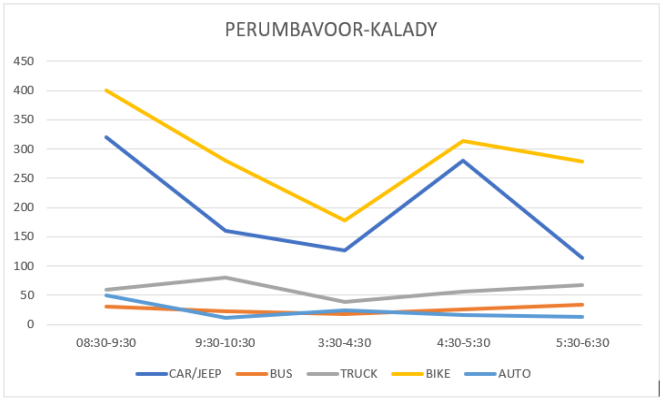
2.1 Study Area

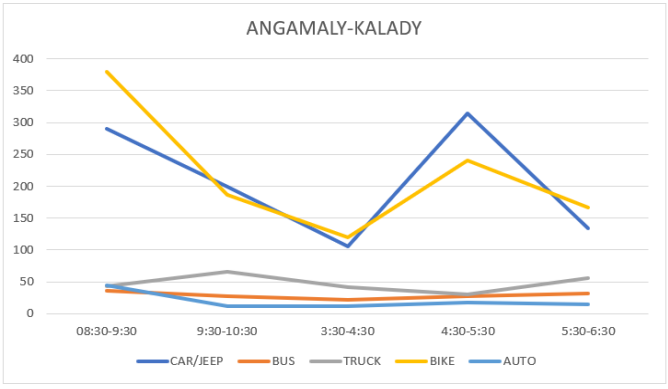


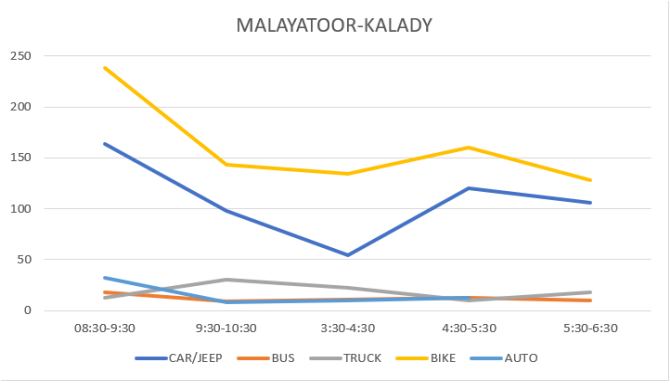
2.2 Traffic survey details

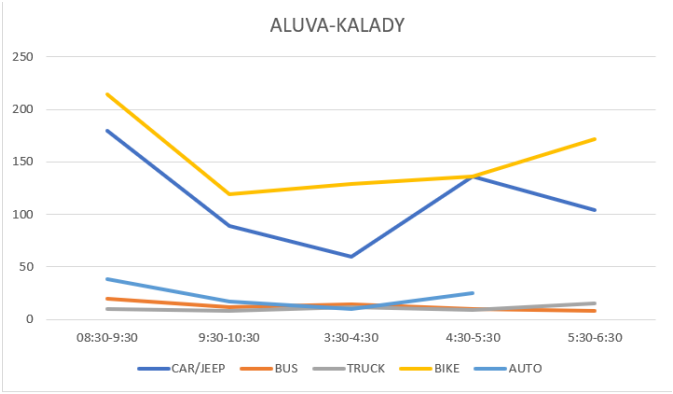
SL NO	ROUTE	TIME INTERVAL	CAR/JEEP	BUS	TRUCK	BIKE	AUTO	TOTAL
1	PERUMBAVOOR- KALADY	8:30-9:30	320	30	60	400	50	860
		9:30-10:30	160	22	80	280	18	560
		3:30 -4:30	126	18	38	178	24	384
		4:30-5:30	280	26	57	313	17	693
		5:30-6:30	114	34	68	278	13	507
2	ANGAMALY-KALADY	8:30-9:30	290	36	43	380	44	793
		9:30-10:30	200	28	66	186	12	492
		3:30 -4:30	106	22	41	120	11	300
		4:30-5:30	314	27	30	240	18	629
		5:30-6:30	134	32	56	167	14	403
3	MALAYATOOR -KALADY	8:30-9:30	164	18	13	238	32	465
		9:30-10:30	98	9	30	143	8	288
		3:30 -4:30	54	11	22	134	10	231
		4:30-5:30	120	13	10	160	13	316
		5:30-6:30	106	10	18	128	9	271
4	ALUVA-KALADY	8:30-9:30	180	20	10	214	38	462
		9:30-10:30	89	12	8	119	17	245
		3:30 -4:30	60	14	12	129	10	225
		4:30-5:30	136	10	9	136	25	316
		5:30-6:30	104	8	15	172	13	312
	TOTAL		3155	400	686	4115	396	
	P.C.U CONVERSION FACTOR		1	3	3	0.5	1	
	PASSANGER CAR UNIT		3155	1200	2058	2057.5	396	
	TOTAL P.C.U				8866.5			

2.3 Graph showing traffic volume survey









3. RESULT ANALYSIS AND DISCUSSIONS

The graph above shows the traffic volumes of peak hour at kalady junction. The intersection of kalady is of 4 roads of different routes. They are perumbavoor –kalady, Angamaly-Kalady, Malayatoor –Kalady, Aluva –Kalady, .The road consist of heterogeneous type of vehicles. The traffic volume survey conducted with the help of videography. The final results convert into the PCU.

The alternate routes create with the help of Q-GIS. It is a free software and open source software. It helps viewing, editing , printing , and analysis of geospatial data. In addition to this Q-GIS supports raster, vector, mesh layers. Vector layers stored in the shape of polygon, line, point. It also supports shape files, personal geodatabases, mapinfo, post GIS and other industry standard formats.

Q-GIS helps to create alternate routes on the basics of traffic volume survey. From the traffic volume survey it is clear that the volume of vehicles is high at kalady junction. The remedial measure is to adopt alternate route. With the help of Q-GIS software alternate routes are created. This alternate routes help to reduce the traffic congestion at kalady junction and saves travel time too.

FIG 3.1Downloading boundary of country from DIVA GIS

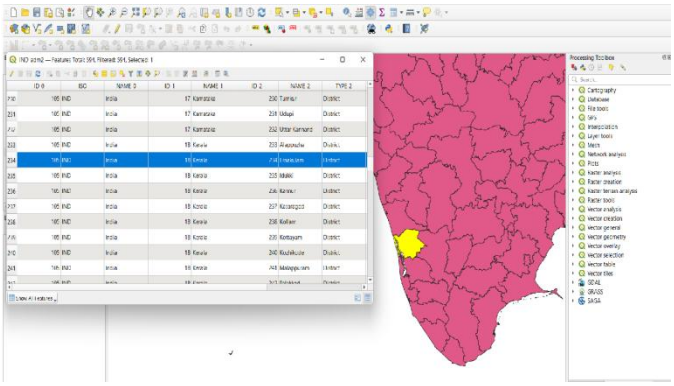


FIG 3.2Add the downloaded map in the software Q-GIS

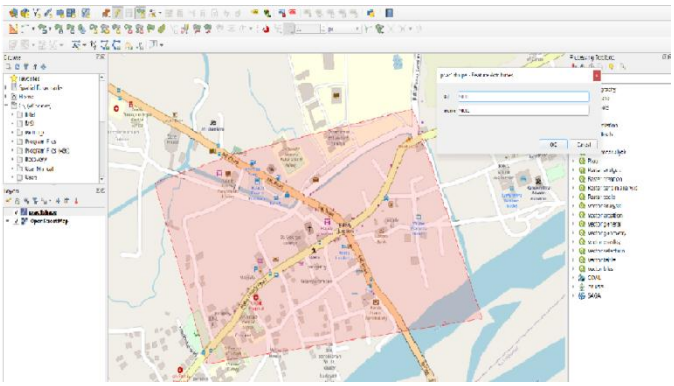


FIG 3.3 Select the boundary layer of the study area

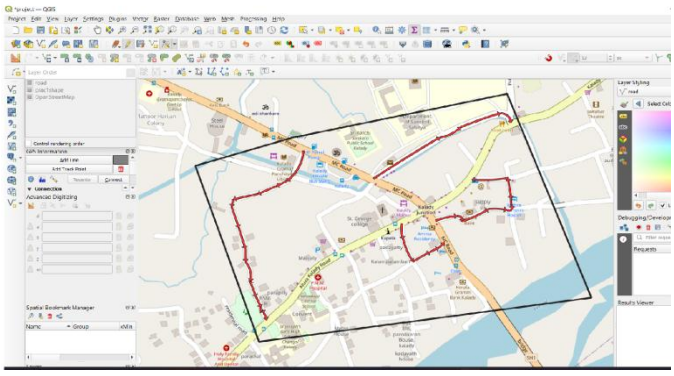


FIG 3.4 Creating alternates routes using Q-GIS

4. CONCLUSIONS

Traffic congestion create a lot of losses. It create more travel time, increase the pollution at kalady. With the help of traffic volume study at the kalady and the final obtained PCU value shows that the traffic volume in the kalady is high. Providing remedial measure to solve this problem. With help of GIS create alternate routes for the traveling to different routes. These alternate routes help to reduce the traffic congestion at kalady and reduce the travel time also.

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