

TRAFFIC VOLUME SURVEY ON NH-44 CRITICAL PLACE

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Abstract—Traffic engineering makes use of engineering techniques and strategies to achieve the secure and time green motion of human beings and items on roadways. The secure and time green motion of the human beings and items is depending on site visitors go with the drift, that is at once linked to the site visitors traits. The 3 main parameters of a site visitors go with the drift are quantity, velocity and density. In the absence of powerful making plans and site visitors control of the city, the present day road infrastructure can not cater the destiny desires of the city. Pedestrian and automobile volumes have extended drastically within the closing decade because of the alternate of the economics of the middle-elegance families. The present day paintings research site visitors traits within the city of namakkal at one decided on precedence junction. In this paintings emphasis became given on site visitors quantity and the evaluation became carried out thru number one site visitors go with the drift surveys at chellappampatti closer to puthansanthai in namakkal. Traffic go with the drift is studied through guide techniques. For higher understanding of the prevailing repute of site visitors go with the drift on the junction, site visitors survey is conducted. Calculation of passenger automobile units (PCU's) for distinct automobile kinds became furnished with the assist of the records collection, an try were made to recognize the site visitors styles for the duration of distinct time periods. Traffic manage at that junction is additionally depending on the site visitors go with the drift traits. Hence the outcomes from the gift have a look at are useful in controlling the site visitors on the intersection and additionally in suggesting a number of the remedial measures to enhance the site visitors protection within the region. Remedial measures which includes imparting barriguard, set up of velocity restriction board, the use of of subways that is already go out close to to puthansanthai(500m) farfar from the chellappampatti in place of crossing furnished at chellappampatti to keep away from the accidents.

Key words: Road Traffic Survey And Volume Study

I. INTRODUCTION

Traffic engineering is defined as the 'Traffic engineering which deals with planning and geometric design of streets, highway, abutting lands, and with traffic operation there on as their use is related to the safe, convenient and economic transportation of persons and goods'. The information on traffic volume is an important input required

for planning, analysis, design and operation of roadway systems.

The PCU is the universally adopted unit of measurement of traffic volume, derived by taking the passenger car as the 'standard vehicle'. Traffic volume studies are conducted to collect data on the number of vehicles and/or pedestrians that pass a point on a highway facility during a specified time period.

Traffic volume studies are usually conducted when certain volume characteristics are needed,

some of which follow:

1. Average annual daily traffic,
2. Average daily traffic,
3. Peak hour volume,
4. Vehicle classification,
5. Vehicle miles of travel.

II. LITRATURE

Peter roeper, et .al, 'Alcohol consumption measured at roadside surveys and variations in traffic injury crashes'

Accident analysis & prevention:

This analysis examines whether roadside surveys that measure changes in the prevalence of driving after drinking can be used to evaluate the impact of interventions designed to reduce alcohol-related traffic crashes. Using data collected at a roadside survey over a 4- year period in two California communities, this analysis examines the relationship of BAC and drinks since 5 P.M, aggregated on a monthly basis, with night time injury crash data from the California highway patrol aggregated on a monthly basis.

V.T Hamizh Arasan and Krishnamurthy, (2008) studied the complexity of the vehicular interaction in heterogeneous traffic. In this investigation, the author, has relates the PCU estimate, made via microscopic of simulation, for the exceptional varieties of cars of heterogeneous traffic, and has concluded that the results clearly show that the PCU price of an automobile tremendously alterations with trade in traffic quantity and width of roadway.

Satyanarayana, (2012) studied the effect of traffic volume, its composition and stream speed on passenger car equivalents. In this investigation, the author, has relates the safe and efficient movement of the people and goods is dependent on traffic flow, which is directly connected to the traffic characteristics. The volume, speed and density are the three important things in public transportation.

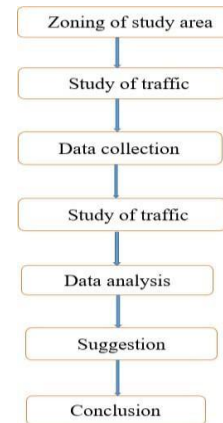
Paper on “TRAFFIC CONGESTION OVERCOME BY ROTARY DESIGN AT VALSAD” by Krutika M.

Gamit, Aney K. Patel & Ankit S. Vasava (April 2019) where they determined the capacity of rotary of each weaving section. Transportation road research lab (TRL) propose d the empirical formula to find the capacity of the weaving section. The width of weaving section should be higher than the width at entry and exit. IRC suggest the entry radius of about 20m and 25m is ideal for urban and rural design respectively. It was found that, traffic volume at kalyanbaug intersection is 3789, there design 4986.89 PCU/ hr which is more than the required so there design acceptable.

III. METHODOLOGY

Method Available for Traffic Count:

- Manual Method
- Mechanical Method
- Automatic Devices
- Moving Observer Method
- Photographic method

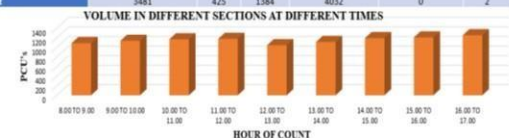


IV. DATA COLLECTION

Field Data Sheet for Traffic Census

Date and Day of the week: 21/04/2022-Thursday
 Direction of Traffic: challagampatti

Type of vehicles	Cars, Jeeps, Vans, Three Wheelers	Buses	Trucks	Motor Cycle and Scooters	Animal drawn Vehicles	Cycles	PCU/hr
Hour of count							
From 8.00 Hour To 9.00 Hour	512	56	218	534	0	0	1320
From 9.00 Hour To 10.00 Hours	474	61	214	524	0	2	1275
From 10.00 Hour To 11.00 Hour	436	58	194	512	0	0	1200
From 11.00 Hour To 12.00 Hour	374	52	141	487	0	0	1054
From 12.00 Hour To 13.00Hour	348	41	122	357	0	0	868
From 13.00Hour To 14.00 Hour	312	42	119	384	0	0	857
From 14.00 Hour To 15.00 Hour	294	32	110	322	0	0	758
From 15.00 Hour To 16.00 Hour	337	39	126	356	0	0	858
From 16.00Hour To 17.00Hour	394	44	140	556	0	0	1134
Total Count	3481	425	1384	4032	0	2	9324



Types of Vehicle Volume Counts:

- Short-Term counts (For one or two peak hours)
- Count for a full day (Hourly fluctuation of flow of vehicles)
- Count for a full week (Hourly and Daily fluctuation of flow of vehicles)
- Continuous counts (Fluctuation of daily, weekly, seasonally and yearly)

Field Data Sheet for Traffic Census

Date and Day of the week: 23/04/2022-Saturday
 Direction of Traffic: chellappampatti

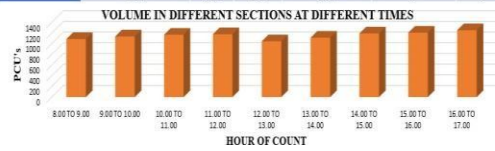
Type of vehicles	Cars, Jeeps, Vans, Three Wheelers	Buses	Trucks	Motor Cycle and Scooters	Animal drawn Vehicles	Cycles	PCU/hr
From 8.00 Hour To 9.00 Hour	487	68	124	374	0	0	1056
From 9.00 Hour To 10.00 Hours	509	74	146	402	0	0	1131
From 10.00 Hour To 11.00 Hour	517	59	182	413	0	0	1171
From 11.00 Hour To 12.00 Hour	476	71	121	321	0	0	989
From 12.00 Hour To 13.00 Hour	43	65	118	294	0	0	900
From 13.00Hour To 14.00 Hour	514	62	124	364	0	0	1067
From 14.00 Hour To 15.00 Hour	561	54	161	341	0	0	1117
From 15.00 Hour To 16.00 Hour	492	71	174	391	0	0	1128
From 16.00Hour To 17.00Hour	564	69	132	484	0	0	1249
Total Count	4552	593	1282	3389	0	0	8908



Field Data Sheet for Traffic Census

Date and Day of the week: 25/04/2022-Monday
 Direction of Traffic: chellappampatti

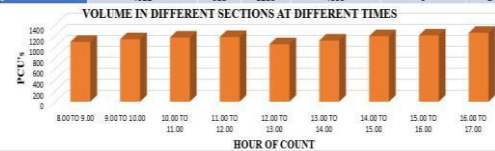
Type of vehicles	Cars, Jeeps, Vans, Three Wheelers	Buses	Trucks	Motor Cycle and Scooters	Animal drawn Vehicles	Cycles	PCU/hr
From 8.00 Hour To 9.00 Hour	416	64	142	432	0	0	1056
From 9.00 Hour To 10.00 Hours	446	71	182	461	0	0	1160
From 10.00 Hour To 11.00 Hour	472	59	129	452	0	0	1112
From 11.00 Hour To 12.00 Hour	486	74	139	413	0	0	1112
From 12.00 Hour To 13.00 Hour	473	68	155	407	0	0	1103
From 13.00Hour To 14.00 Hour	464	61	172	426	0	0	1123
From 14.00 Hour To 15.00 Hour	471	68	121	443	0	0	1049
From 15.00 Hour To 16.00 Hour	398	78	173	469	0	0	1118
From 16.00Hour To 17.00Hour	407	82	119	471	0	0	1079
Total Count	3979	625	1332	3974	0	0	9912



Field Data Sheet for Traffic Census

Date and Day of the week: 26/04/2022-Tuesday
 Direction of Traffic: chellappampatti

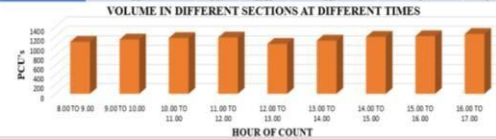
Type of vehicles	Cars, Jeeps, Vans, Three Wheelers	Buses	Trucks	Motor Cycle and Scooters	Animal drawn Vehicles	Cycles	PCU/hr
From 8.00 Hour To 9.00 Hour	462	78	163	415	0	2	1120
From 9.00 Hour To 10.00 Hours	447	68	144	432	0	0	1091
From 10.00 Hour To 11.00 Hour	478	71	153	447	0	0	1149
From 11.00 Hour To 12.00 Hour	413	58	121	428	0	0	1020
From 12.00 Hour To 13.00 Hour	409	62	112	453	0	0	1036
From 13.00Hour To 14.00 Hour	436	72	134	461	0	0	1103
From 14.00 Hour To 15.00 Hour	419	49	139	454	0	0	1061
From 15.00 Hour To 16.00 Hour	482	81	162	467	0	0	1192
From 16.00Hour To 17.00Hour	476	79	157	502	0	0	1214
Total Count	4022	618	1285	4059	0	2	9866



Field Data Sheet for Traffic Census

Date and Day of the week: 24/04/2022-Sunday
 Direction of Traffic: chellappampatti

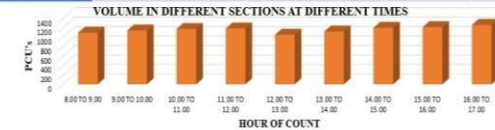
Type of vehicles	Cars, Jeeps, Vans, Three Wheelers	Buses	Trucks	Motor Cycle and Scooters	Animal drawn Vehicles	Cycles	PCU/hr
From 8.00 Hour To 9.00 Hour	374	59	134	312	0	0	878
From 9.00 Hour To 10.00 Hours	336	61	146	329	0	0	872
From 10.00 Hour To 11.00 Hour	387	68	157	364	0	0	976
From 11.00 Hour To 12.00 Hour	393	47	163	371	0	0	975
From 12.00 Hour To 13.00 Hour	374	42	158	358	0	0	932
From 13.00Hour To 14.00 Hour	312	43	123	302	0	0	780
From 14.00 Hour To 15.00 Hour	298	64	133	341	0	0	836
From 15.00 Hour To 16.00 Hour	397	65	167	359	0	0	986
From 16.00Hour To 17.00Hour	403	58	148	381	0	0	990
Total Count	3274	507	1329	3177	0	0	8226



Field Data Sheet for Traffic Census

Date and Day of the week: 27/04/2022-Wednesday
 Direction of Traffic: chellappampatti

Type of vehicles	Cars, Jeeps, Vans, Three Wheelers	Buses	Trucks	Motor Cycle and Scooters	Animal drawn Vehicles	Cycles	PCU/hr
From 8.00 Hour To 9.00 Hour	494	64	128	402	0	0	1088
From 9.00 Hour To 10.00 Hours	522	71	134	407	0	3	1137
From 10.00 Hour To 11.00 Hour	491	77	150	450	0	0	1168
From 11.00 Hour To 12.00 Hour	522	61	199	396	0	0	1178
From 12.00 Hour To 13.00 Hour	490	68	145	343	0	0	1046
From 13.00Hour To 14.00 Hour	520	52	134	407	0	0	1113
From 14.00 Hour To 15.00 Hour	547	80	171	395	0	0	1193
From 15.00 Hour To 16.00 Hour	479	67	186	475	0	0	1207
From 16.00Hour To 17.00Hour	534	68	142	509	0	0	1253
Total Count	4599	625	1389	3784	0	3	10380

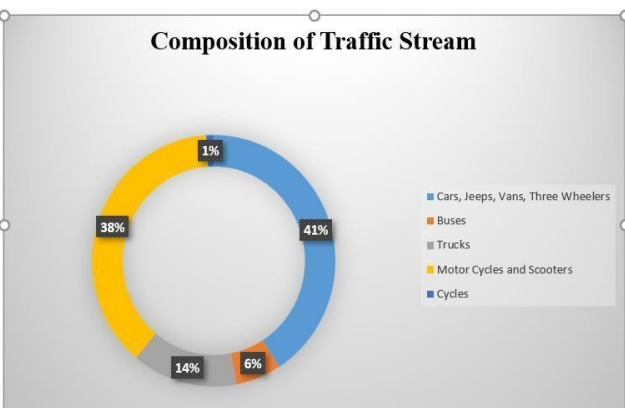


Weekly summary sheet of Traffic Census

From 21/04/2022 To 27/4/2022 Detail of census point: Chelappampatti												
Period				Fast Vehicles				Slow Vehicles				
From		To		Cars, Jeeps, Vans, Three Wheelers		Buses		Trucks		Motor Cycle, and Scooters		
Date	Hour	Date	Hour								Total	
21/04/22	9.00	21/04/22	17.00	3754	425	1384	4032	9595	0	2	0	2
22/04/22	9.00	22/04/22	17.00	4328	587	1542	3921	10378	0	4	0	4
23/04/22	9.00	23/04/22	17.00	4552	593	1282	3389	9816	0	3	0	3
24/04/22	9.00	24/04/22	17.00	3274	507	1329	3117	8226	0	0	0	0
25/04/22	9.00	25/04/22	17.00	3979	625	1332	3974	9912	0	2	0	2
26/04/22	9.00	26/04/22	17.00	4022	618	1285	4059	9986	0	2	0	2
27/04/22	9.00	27/04/22	17.00	4599	608	1389	3784	10380	0	3	0	3
Total for the Week				28508	3963	9543	28276	68293	0	16	0	16
Average daily traffic for the week				41	6	14	38	0	1	0	0	0

VEHICLE COMPOSITION

Types of Vehicles	% of total flow
Cars, Jeeps, Vans, Three Wheelers	41
Buses	6
Trucks	14
Motor Cycle and Scooters	38
Cycles	1



VOLUME STUDY: VOLUME/FLOW

Summary of data from all 7 days

vehicles	day1	day2	day3	day4	day5	day6	Day7
CARS,JEEPS, VANS	375	487	515	363	439	452	513
BUSES	47	66	68	51	70	79	68
TRUCKS	150	173	146	139	148	137	158
MOTORCYCLE &SCOOTERS	449	432	387	345	446	451	423

DETIALED DATA

VEHICLE	NO.OF.VEHICLE	PEC	PCU	TOTAL
CARS	450	1	450	762/24hrs
BUSES	65	3	195	
TRUCKS	150	0.5	75	
MOTORCYCLE & SCOOTERS	419	0.1	42	

IV. DETIALED CALCULATION

HEP and DEP VALUES

FACTOR	VALUE
Hourly Expansion Factor (HEF)	17.11
Daily Expansion Factor (DEF)	7.012

Service flow Rate:

$$762 \times 4 = 3048 \text{ veh/hr}$$

Daily volume:

$$3048 \times \text{HEF} = 3048 \times 17.11 \\ = 52152 \text{ veh/day}$$

Weekly volume:

$$52152 \times \text{DEF} = 52152 \times 7.012 \\ = 365689 \text{ veh/week}$$

ADT:(Average Daily Traffic)

$$365689/7 = 50813 \text{ veh/day}$$

AADT:(Annual Average Daily Traffic)

$$50813 \times 1.395 = 70884 \text{ veh/day}$$

SUGGESTION

Hence the outcomes from the gift have a look at are useful in controlling the site visitors on the intersection and additionally in suggesting a number of the remedial measures to enhance the site visitors protection withinside the region.

Remedial measures which includes imparting barriguard, set up of velocity restriction board, the use of of subways that is already go out close to to puthansanthai(500m) farfar from the chellappampatti in place of crossing furnished at chellappampatti to keep away from the accidents.

V. CONCLUSION

Discussion on vehicle composition:

Vehicle composition shows that most of the vehicles in the traffic stream were light vehicles. Only twenty seven percent (6%) was buses. The reason for high proportion of light vehicle is the proximity of the location to residential area of high income group people. The light vehicles were not highly occupied. But buses were almost fully occupied and people were travelling by standing due to lack of seat in them. It can be assumed that, more people were travelling by bus though their occurrences were low. We were settled on a suggestion that if the number of busses could be increased then the traffic system would become more efficient. Again we saw that the busses were very much old and some of them did not have smooth front glasses. So a huge modification is recommended in the public transportation system.

Discussion on flow fluctuation:

To draw flow fluctuation curve, it was assumed that volume for Ten continuous hours were counted, although all vehicles were counted within one hour and fifteen minutes. Each group counted vehicles for 1 Hour. Flow rate was calculated from that short count data and plotted. The average flow fluctuation curve shows two peaks at 10:00-11:00 hour and 15:00- 16:00 hours.

Recommendations for future work:

The present study is focused mainly on traffic volume only. Speed-flow studies are useful to evaluate the more parameters. There is a scope on speed flow studies on urban road links for future work.

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