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Passenger Management and Travel Behaviour Along MRTS Corridor

ABSTRACT

The rapid growth of urban population presents many changes in the travel pattern such as congestion and delay. The present transport system does not match with growing population as it was planned for the population a decade before and not revised for the latest input The person who is away from the transit stop i.e. even 0.5km away will not use the Public Transport and starts to use the own vehicle and it causes more congestion on road. A dedicated, convenient, fast, reliable, comfortable MRTS system exist, in the area the people along the corridor do not use the system. In this work an attempt is made to find out who, when, why and how the people along the MRTS corridor travel. This study also tries to investigate the travel characters of people along corridor. The possible management measures are suggested for the effective function of all modes and to reduce in congestion, delay and pollution in the city.

1. INTRODUCTION

The MRTS was initially started to ensure the better mobility of the people along the corridor after the various process of survey. It was implemented and dedicated to the people in the year 2004. A well connected road forms a basic infrastructure to a transport system. The travel behavior is influenced by many factors such as socio economic status, work status, land-use, mode of transport etc. There is a scope for the trip attraction and trip generation in the study area since it includes 18 stations with mixed land use activity such as residential 36%, commercial 11%, Industrial & Institutional 24 % and others 29%.The public transport system such as Mass Rapid Transit System (MRTS) and Metropolitan Transport system (MTC) operates in the study area for the efficient movement of the people. The MRTS, MTC transport about 12000 passengers/ day and 80000 passengers / day respectively. The other mode like two wheeler, car, and auto carries about 150 000 people/ day. The total population along the MRTS corridor is 989723 in which 40 % of the people are low income group (LIG). This shows that the people have only two choice of transport such as MTC, MRTS. The study revels that one system is over crowded (MTC) and other (MRTS) operates at loss of money. To have a uniform and equally distributed share among all public transport system it is very essential to know the real situation of the people in terms of economic status, land use activity, family size, vehicle ownership etc.

2. LAND USE DISPOSITION ALONG THE CORRIDOR

The patronage to any transportation project is highly dependant on the land use disposition along the corridor. The poor patronage of MRTS is also attributed to the land use development along the corridor and the socio-economic characteristics of the people living along the corridor. The study of the land use along the corridor is presented below. The impact of slum population on rider ship is clearly explained in table 2 which gives the details of population and slum population along the corridor and table 1 gives the classification of station areas as per the population density. Table 1 and table 2 are correlated with each other. The result of

this is very clear that Triplicane and Lighthouse are high-density zones but they have nearly 20 percent of its population as slum population. Being a high-density zone they are likely to generate more trips but since it has predominant slum population it is unlikely that Triplicane and Lighthouse generates Non-MRTS trips. Greenways, Kasthuribai Nagar, Indira Nagar and Thiruvanmaiyur are low-density zones that also have more that ten percent of its population as slum population. Studies reveal that the above-mentioned stations have a mix of high income group (HIG) on one side and LIG on the other side and it does not generate MRTS trips. Also there are around 266 slum clusters along the MRTS corridor, which do not generate MRTS trips.

The corridor passes through institutional set up on one end and residential set up on the other end and LIG residential pockets sandwiched between the two. The low density residential zone in phase II generates Non-MRTS trips and the LIG residential pockets of Triplicane and Lighthouse also generates Non-MRTS trips. The institutional activities at the northern end of corridor attracts trips but Origin and destination studies reveal that these trips are not generated from places along the MRTS corridor.

3. SOCIO ECONOMIC CHARACTER AND MODE USED

Around 42 % of the employees fall under the middle-income group and 38 % under the high-income group. Only 20% of them fall under the low-income group. Table 3 presents the mode of transportation is used by different income category is presented in table 3.The data collected from the commuter revels that, bus, train and two wheeler are the predominant modal choices of middle-income group and low- income group. On an average, each modal share is 30%, i.e., 30% of LIG and MIG use bus, 30% use train and another 30% use two wheeler. Only ten percent of the total people use cycle/other modes to reach the work place. Even the entire low-income group does not use public transit since only 60% of LIG use public transit and one fourth of them use two wheelers. 51% of the high -income group people use two wheeler and 11% of people use car to reach the destination and 15% use para transit modes. Unfortunately nearly 40% of those people fall under HIG category whose likelihood of using the Public transit is very less. While the usage of private mode increases with respect to increase in income, usage of public transit like bus and train decreases.

Table 1
Classification of Stations as per the Population

Phases	High Density Zone >400 ppHa	Medium Density Zone 200 – 400 ppHa	Low Density Zone >200 ppHa
Phases I	Triplicane (586) Light House (517)	Chindadiripet (294) Beach (287)	Fort (195) Park Town (180)
Phases II		Chepauk (236) Thirumailai (370) Mandaveli (204)	Greenways Road (158) Kotturpuram (127) Kasthuribai Nagar (120) Indira Nagar (154) Thiruvanmaiyur (147) Taramani I & II (77) Velachery (44)

Table 2
Details of population and slum population

Station	Population – 2001	Slum Population	Slum Population % to total
Beach	45635	2405	5.27
Fort	45635	2333	5.11
Park Town	34650	727	2.10
Chindadiripet	74381	4590	6.17
Chepauk	28046	1020	3.64
Triplicane	33381	5720	17.14
Light House	82140	16555	20.15
Thirumailai	103398	13668	13.22
Mandaveli	73866	7475	10.12
Greenways	42289	9137	21.6
Kotturpuram	82498	6815	8
Kasthuribai Nagar	54733	6735	12.3
Indira Nagar	65042	8228	12.6
Thiruvanmaiyur	46567	6577	14
Taramani - I	22439	5105	9
Taramani – II	22439	2105	9
Velachery	132584	10235	7

Table 3
Modal split

Income Category	Used to reach destination			
	Bus	Train	T/W	Others
< Rs 4,500/-	40%	30%	15%	15%
Rs 4,500 – Rs 7,500	30%	30%	25%	15%
Rs 7,500 – Rs 10,000	25%	30%	25%	25%
Rs 10,000 – Rs 15,000	22%	22%	36%	20%
> Rs 15,000/-	10%	13%	51%	11% Car

4. DISTANCE TRAVELED FROM HOME TO WORK PLACE

The distance traveled by people of different economic level is shown in table 4. The statistics show that 50% of the passengers are short distance passengers as they travel less than 10 km. Around 19% are long distance passengers and they travel for more than 20 km to reach the work place. This 19% of people must be using train to reach the work place. The 50% of the short distance passengers includes 40% of MIG and 60% of HIG people. The short trips made by HIG people by T/W or car. On other hand 40% of MIG certainly uses the public transport system. The concentration of 60 % of HIG people on road creates the delay, congestion and pollution. If we provide a convenient, fast and reliable public transport system these people will start to use the public transport system. The medium distance passengers (10-20 KM) are about 30-35 %, on calculating the risk, economical status, speed they prefer the public transport system even if they are HIG people. The same situation prevails for the group of long distance passengers.

5. GENERAL CHARACTERS OF PEOPLE

The overall purpose of trip is given in the fig 1. The fig 1 depicts that 46% of trips used by working people and 28 % is for education purpose. This shows that the people along the corridor generate more trips. The week end trips for shopping and recreation are also in a considerable amount. The trip generated from the study area is

<u>**Table - 4**</u>
Distance travelled by various imcome groups and mode used

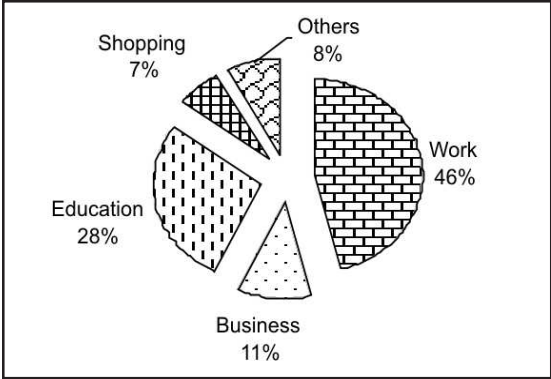| Passenger category based on distance	%	Mode used	Income Group
Short Distance Passengers (< 10 km)	45–50	T/W, Bus	45 -50% HIG, 35 –40 MIG
Medium Distance Passengers(10 – 20 km)	30 – 35	T/W, Bus, Train	35 –40 HIG, 45 – 50 MIG
Long Distance Passengers (> 20 km)	15 – 20	Train & T/W & bus	45% MIG, 30 % LIG

Fig. 1: Trip Purpose

Fig. 2: Daily Activity Pattern

Fig. 3: Travel by Age Group

given in Fig 2 shows mostly the home based trips made for the work are made by both gender. Home-work-Home trips constitute 49% of the total trips produced. The next largest activity of trip is House-others-House trip. These are usually made by the female commuters for purchase and those trips are short trips. The other activities contribute not more than 5 % and these trips are occasional. The figure 3 shows the maximum number of trips is made by the people between the age group of 21-60 and they are mainly work trips, others such as age group of 0-20 make school / educational trips.

6. CONCLUSION

The people along the MRTS corridor are mixed with all categories such as slum (18%), MIG (57 %), HIG (25%). The majority of people are middle income group and these people do not spend more money for transport. The land use activity in the study area is residential (36%), commercial (11%), institutional & industrial (24%) and vacant land (29%). The major land use activity is residential, commercial and institutional. Hence this area attracts more people. The tendency of people is to prefer fast and economical mode. The
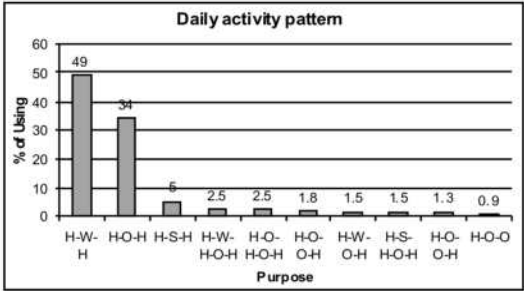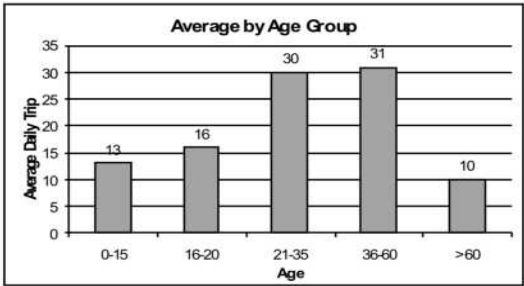
activity of people is mainly Home-Work-Home (49%) trips which are made by working group and Home-others-Home (34%) by non working group. Nearly 83% of the people travel every day at least for a short distance less than 10 km. The maximum number of trip is made by the people between the age group 21-60 is 60% of the trips is to reach the working place and 16 % of trips for educational purpose. Hence 76 % of people are making work/ Educational trips.

The mode preferred by the people is TW/ Bus leaving other modes untouched. To equally distribute the share among all modes we suggest providing better accessibility. We can also operate shuttle trips between two or three stops since the short trips are more in the study area. To attract the passengers having two wheelers a better parking place shall be provided at all stations.

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