

Traffic Volume Reduction Techniques

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Abstract- Best-ride is mode of transportation which reduces the traffic volume on the roads, it is alternative of the metro and a cheaper-greener mode of the transportation to reduce the traffic volume on the roads and it also helps to increase economical factor of transportation in future. It is also a way to save raw material in comparison with metro technology of recent times. By the help of this technique, it can help us for saving of time of construction, cost of construction and save the energy of transportation. The mode of transportation reduce traffic volume 30-35% and cheaper than metro 40-45%. It is also helpful to reduce pollution and jams in the cities.

Keywords - Traffic Volume, Parking Space, Jaipur metro, Passengers

I. INTRODUCTION

This is the mode of transport which is the model like a subway or a light rail mount on the road having 4-4.5m high in the two levels: passenger board on the upper level and vehicles pass under below than 2m high operated by electric and solar energy with the speed up to 60 km/h with passenger capacity 1200-1400 in one time and without any obstruction of other vehicles with cost of 516551789.52 rupee. In present time the traffic jams are the main problems in all the cities of the India in the Jaipur the tonk road is one of the main road which have high traffic volume of buses and other vehicles bestride light train is the simple, easy and cheaper method to solve the traffic, pollution and economy problems. Strength of this is the shorter construction period 1 year for 40km for subway this is 3 year at best. This bestride car is not need a large parking area as the buses are needed. It can park at its own stop without affecting the other vehicles space or the road area and interior of this is very pleasant and skylight is touching the soul of the passengers.

II. STUDY AREA

A. Construction terms

In the construction of bestride bus there are two steps of construction:

1. Road base designing

In the road base designing there are two ways first is laying rails in both side of the car lane which saveing 30% of energy and second we will paint two white line and use auto Pilot technology in bus.[1]

2. Platform station designing

With station designing we will chooses to load and unload through sides and the other is using the built in ladder so that passenger can go up and to the overpass through the ceiling door.

It is take up 1200 people at a time means 300 in one cart. The engine design and car designing is according to suitable environment, area and materials salability, income and traffic volume.

Bestride bus is completely powered by the AC electricity and solar energy system. In terms of electricity, setting is called relay direct current electrification. The bus itself is electric conductor, two rails built on the top of the bus which allow charging post to run with the bus. The next charging post on the bus before the earlier is left. It is also a new technology which consists of two super capacitor, a device which can be charge, discharge and store electricity quickly. The power will store in it during stopping a station to the next station and during this process no toxic gases are produce.

B. Working process

This bus is run like the other vehicles but some excess features are must for safe it from unwanted accidents and problems of the excess high vehicles to keep the trucks away from the bus some sensors cameras are on every point of the bus to sense and give them signals of the turning with ultrasonic wave and laser rays for the cars which are to close to the passage and barriers and alarms to guide them with the safety of them and itself so the flexible barriers are use and inside indicator to guide them previously also radar embedded on the walls to warn the cars. The red light system of the city is also modified according to the feature that the light on the crossing and passing is automatic that the buses are reached near the end the lights of the other street or side are auto matically red and barrier also set which fall dawn so their are no possibility of accidents. Or in the case of the vehicles in the passage of bus or the bus is turn then the barrier or light is also work in the same way. The bus is 6m in the width and 4-4.5m in height. Or in the case of any emergency the escape facility is in the point of sliding through the window and base which is fast way of escaping.

C. Benefits of this mode of transportation

The bus can save 1045 ton of fuel per year and the reduce carbon emission 2896 ton per year. Reduce the simple bus problems of arrangement and hug number of buses and private cars also economical in compare of the metro technology. Environment pollution decrees in the hire amount up to 20-23% from the use of the normal buses. Construction of bus is complete in 2 year for 40km and it is powered by renewable sources of energy like solar and electricity. It also not occupies any parking space which reduces the most of traffic jam problem and not affects any public parking areas. The interior of bus is like normal bus which reduces the fear of people to travel. One bus has ability to replace 40 buses in one year. The construction cost of bus is 10% of the cost of construction of elevated roads, metro projects.

1. Jaipur metro

The Jaipur metro is being build in 2 phase first is called pink line and second is orange line, pink line is completed which consist of 9.63km (5.98mi) from mansarover to chandpole including the civil works permanent way, warehouse and grip and power supply was being managed by DMRC.phase 1-A completed with 9 stations and .95km is underground and 9.13km is elevated. Estimate cost of east-west corridor of Jaipur metro is 3149 crore the state government would founding 600 crore and other by wings of state development department and municipal departments. The phase second may estimate cost 6584 crore for which government is mulling on PPP mode. The Rajasthan high court issued show cause notices to JMRC, JDA on petition by shop owners to justice them, as petitioner alleged no proper survey of pink line. The phase 1-B has recently come up with high problems its construction can result in the risk on some Unesco Word Heritage Sites such as hawamhal, janter manter etc. phase 1-B lies in the walled city just 2.349km and construction cost is1127crore and it is not according to the laws of Jaipur archaeological, which state that in the environs of heritage sites digging work is not allowed. The project also causes hug losses of business activity of shop keepers, as the city markets will remain either close or operate in barricades only.

2. Bestride bus

The globalization at its crest, the global cities like Mumbai, Kolkata, and Jaipur etc. of India are finding it difficult to match up with the increasing demand of transportation. This has led to an wide explore to develop an ideal mode of transportation which will not only meet with demands of people, but at the same time decreases the carbon emission and reduce traffic volume economical and cheaper and easy to established by the government so the best ride bus is the one of the idea or master plan which solve the most of the problems of the traffic and economy of the city and transportation. The concept of these bus is first introduce in the Beijing international high-tech expo on may 2010 the model of bus is like a burrow run on the road. It consist super sensitive alarm system which warn the cars run with it and led signals to instruct the vehicles on the road and some remodeling of the road system of the city. There will be3 inflatable emigration slides for safety purpose these features in the airways and a perfect sensor for exterior and interior part of bus to prevent it from accident from other vehicles.

A repeater traffic signal projector to project traffic signals in the bus on screen of exterior and interior sides of bus for essential of the vehicles which are underside of bus. A light display in the bus which allow the driver to see the vehicles underside the bus or near the bus. The bus is also having the Automata ion programs and sensors for safety.[2]

III. RESULT AND CONCLUSTION

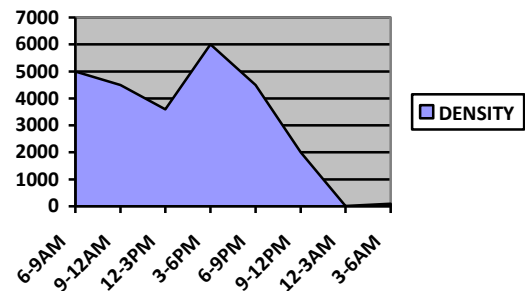
A. Traffic details

The Rajasthan state road transport corporation (RSRTC) is a regional a unit provided bus services in city and 1200 buses of private companies.

TABLE 1: ANALYSIS OF TRAFFIC VOLUME

LOCATION	PEAK PCU	DAILY PCU	PEAK HOUR FACTOR
TONK ROAD(HONDA SHOW ROOM)	4640	70950	6.5%
TONK ROAD (PRTAP PLAZA)	4922	82103	5.99%

Fig. 1: Passengers Density Curve with Time for Tonk Road



In this curve x-axis represent number of persons and y-axis represent time cycle of one day.

This data is according to passenger’s travels in the buses or according to data of public transportation data other traffic jams are due to personal vehicles and commercial vehicles are other which contributes in increasing traffic volume.

Table 2: Comparison Between Jaipur Metro And Bestride Buses

S.N	FACTOR	BESTRIDE BUS	METRO
1	cost	516.55crore(40km)	3148crore(9.63km)
2	Construction period	2 year	4 years
3	Quality	Rapid transportation	6 th rapid transportation of India
4	Avg. speed	60km/hr	40km/hr
5	Manufacturing	hashi future parking equipment company(CHINA)	beml(Bangalore) India
6	Environment impacts	Reduce per person carbon emission	Reduce per person carbon emission
7	Problems associated	Injured heritage places of jaipur	Accidental cases are possible in starting

Table 3: Projected Population Growth Rate Of Jaipur

YEAR	POPULATION	DECADAL GROWTH RATE
1991	21.62	
2001	30.45	40.91%
2011	44.46	45.98%
2021	63.12	44.33%
2025	75.61	44.60%

This is because of jaipur already exhibits a high growth rate looking the fast development areas around it.

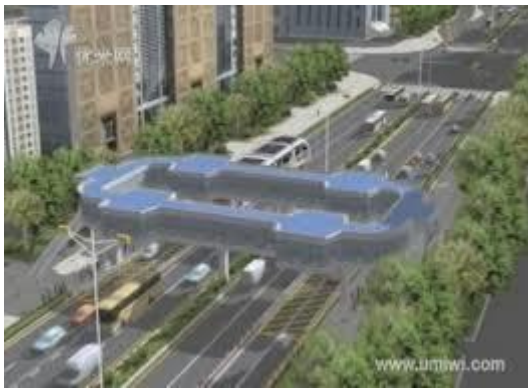
B. Effect Of Bestride Bus on Tonk Road Traffic Volume Theoretically Survey

Traffic volume on the tonk road is due to the buses are reduces very high and with the bestride bus the personal vehicles are also reduces day by day at least the traffic problem on the tonk road is solved and the economy problem of the project like metro is also solve.

C. Problems with the Bestride Bus

Complex mechanism is use in the construction of bus and high technology of sensors and camera or other equipment required rremodeling of the road and typical designing of traffic lights and route plan.

Fig. 2: The figure shows the bestridebus and its station or platform



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