
Public Transport System in Guwahati City - Problems and Issues

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ABSTRACT

A large number of people in Guwahati city use the Public Transport system everyday to get to work etc. This paper aims at studying the characteristics of the existing Public transport system in Guwahati city, and identifying the problems and issues in the system. The trip characteristics are analyzed with respect to the mode use pattern, bus passenger count, trip frequency etc. The road users are segmented into various socio economic groups based on their income etc. Also, the existing service and infrastructure characteristics of public transport in Guwahati are studied. Finally, this paper identifies the issues and suggests measures that may help to improve the existing public transport system in Guwahati City.

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INTRODUCTION

Transport of men and material is one of the very important parameters that contribute to the development of the country. Inefficient transport system not only hinders the development of the country but also slows down the day to day processes. Public transport system is used by majority of commuters in India because it is available to the people of all economic ranges and is accessible to very remote parts in any place. Guwahati, being the biggest city in the north eastern part of India, is a place of business and tourist importance. Hence, the public transport system is one of the key factors that have to be efficient, flawless and sustainable.

In context of transportation, sustainability would mean developing better transportation systems, options, and expectations consistent with the objective of securing future social and economic development within a sustainable environment that ensures community well-being. Sustainable transport is possible only with the suitable measures pertaining to transportation system management, energy management, capacity management and environmental management.

In this respect, a study was carried out in Guwahati, Assam. Data regarding the two most used public transport modes i.e., the bus transport system and the inland water transport system was collected and analysed. The final objective of the paper is to identify the issues and suggest measures in order to improve the existing condition of public transport system in Guwahati city.

The following section describes the area of study and its salient features. The analysis of the Public Transport user characteristics is presented in the next section followed by the problems and issues, the demand and supply analysis and finally the measures.

STUDY AREA: SALIENT FEATURES

Guwahati, as cited above is the biggest and important city in the north eastern part of India. This city is the centre for development in north eastern part of the country. Various modes such as walk, bicycle, auto rickshaw, taxi, bus and boat are in use as the access and egress modes to the rail transit stations and bus stops in the city. The Brahmaputra river provides the channel for inland water transport, thus connecting the heart of the city to areas in the outskirts on other side of the river.

The ASTC (Assam State Transport Corporation) and various public operators provide the city bus system. According to 2001 census survey, the population of Guwahati city was 890,773. The regions of high concentrations of population are shown in Fig.-1. The regions 1, 2 and 10 marked in Fig.1 are centers of trade, commercial and economic importance.

The same are the regions where the maximum number of employed people is observed (Fig.-2). So, the traffic flows to and from these regions as well as within the regions is considerable when compared to the traffic flow in the remaining part of the city.

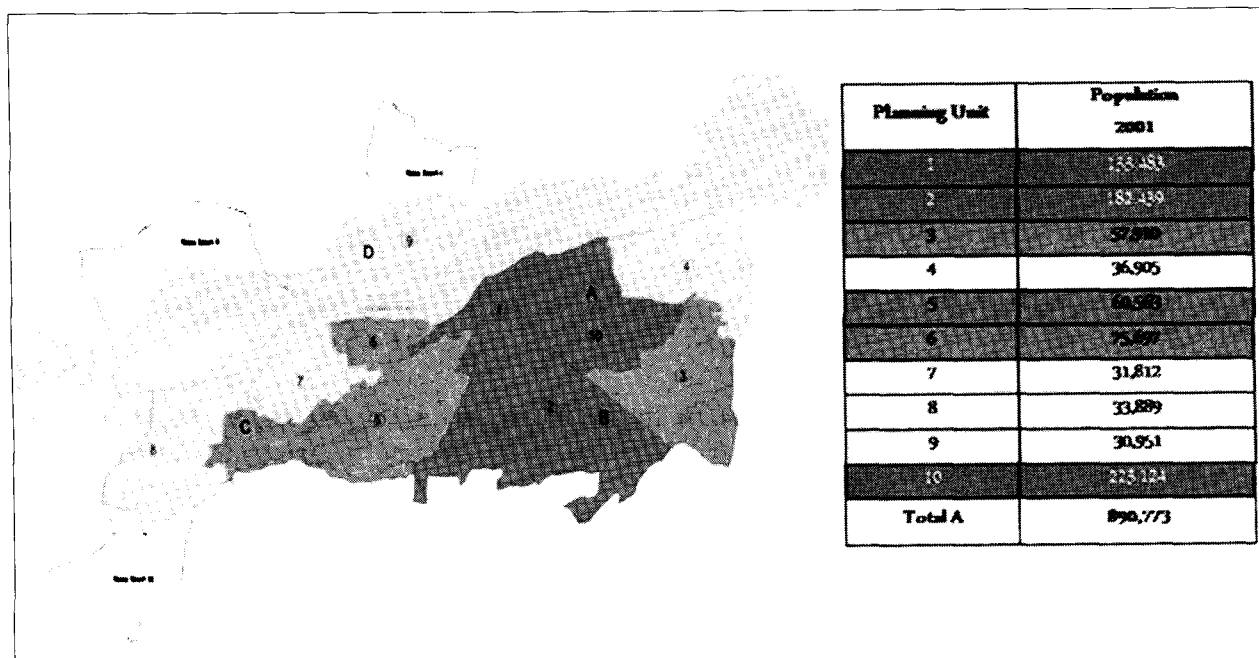


Fig.-1 : Population Distribution in Guwahati City in 2001
 (Data Source: CMP study by WSA)

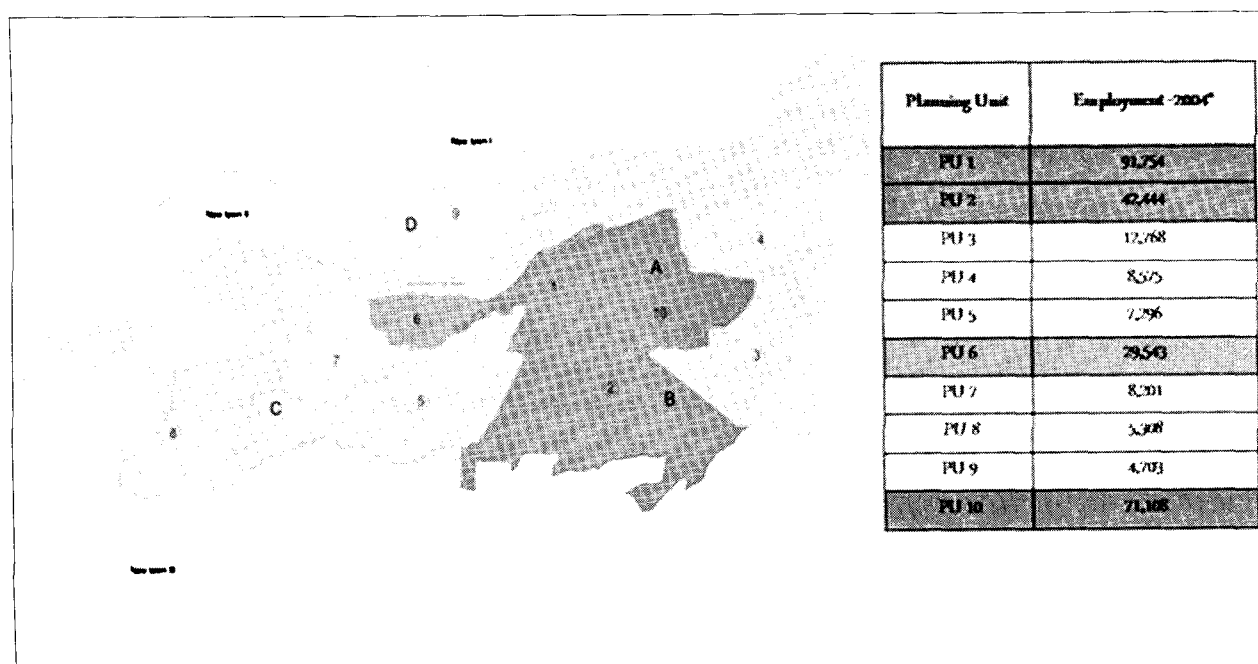


Fig.-2 : Employed People Statistics in different parts of Guwahati City
 (Data Source: CMP study by WSA)

A bus passenger count survey (Source: CMP study by WSA) on the basis of time and route was conducted at the major stations throughout the city (particularly concentrating in the regions 1, 2 and 10 from Fig.-1). The passengers had been interviewed for factors like their trip frequency, household income, waiting time etc. Data was collected at all the major

bus stations like Pan Bazaar, Fancy Bazaar, Jalukbari, Vishal Mall etc. The following section discusses the characteristics and issues of the bus transport system followed by the inland water transport system.

BUS TRANSPORT SYSTEM: CHARACTERISTICS AND ISSUES

Presently, the bus transport system in Guwahati is run by Assam State Transport Corporation (ASTC) and many private operators. Together they run close to 1200 buses in the city. However, due to poor regulation and permit system, most of these buses ply on few routes of higher demand like, A. T. Road, M. G. Road, G.N.B. Road, G. S. Road etc., causing

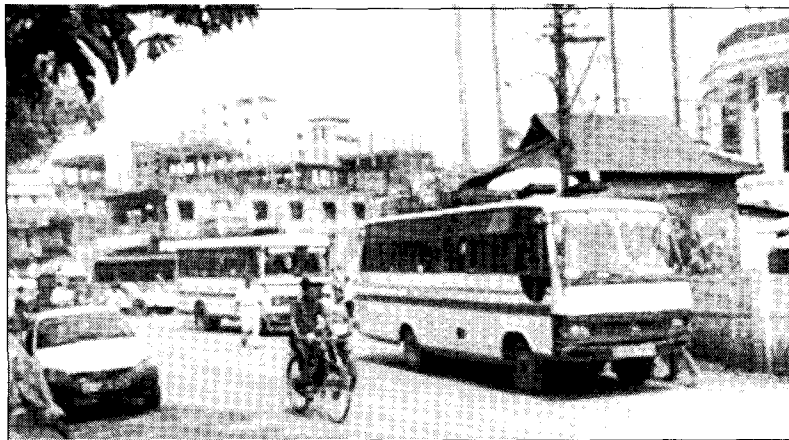
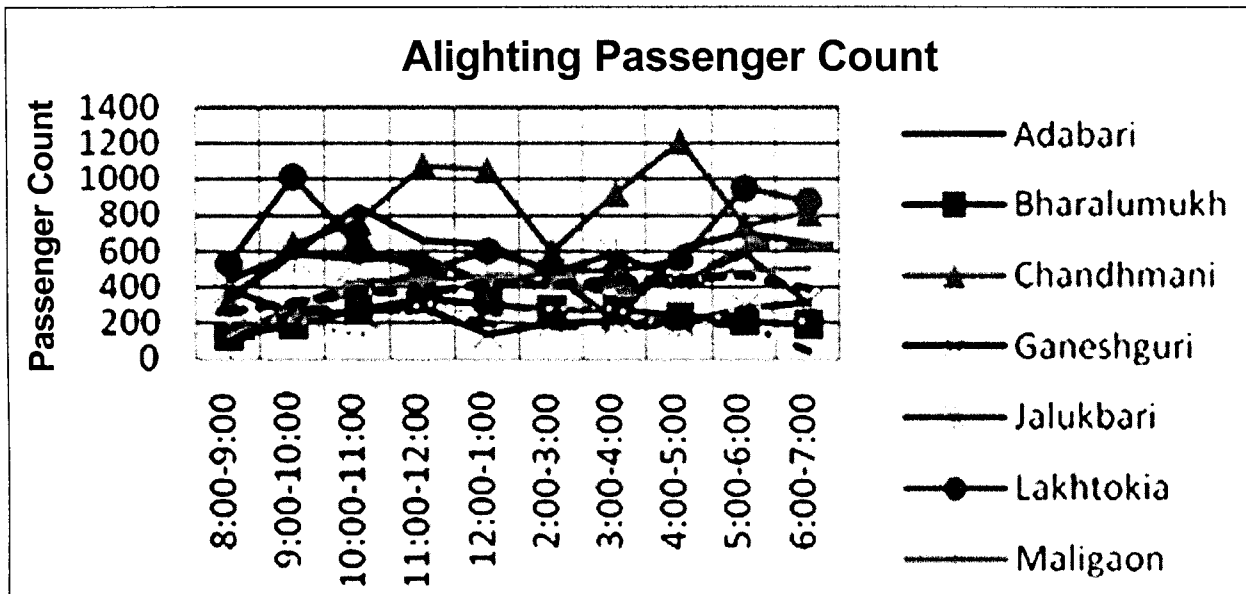
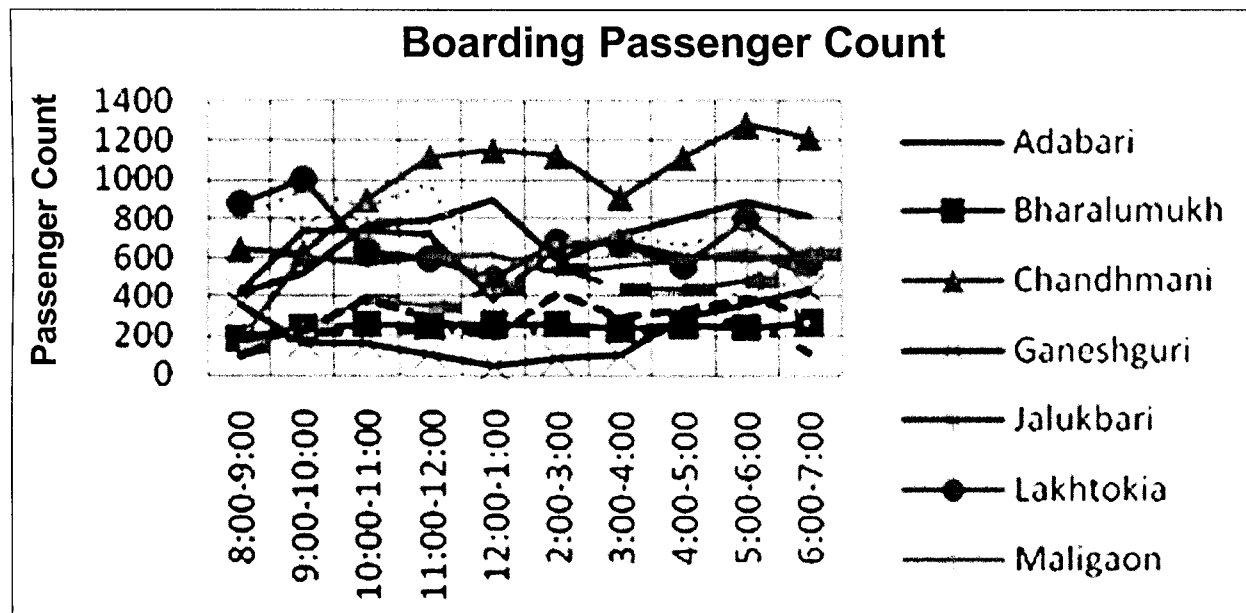


Fig.-3 : Old and Polluting Buses in Guwahati

more congestion than really solving the congestion problem in these busy routes. No time headways are followed on these routes and different operators simply compete with each other to attract passengers, which literally defeats all the positive aspects of having a public transport system in the city. Most of the bus fleet is old and polluting (Fig.-3) barring few A.C. and Volvo buses (called as Rhino buses). Currently, there are four bus terminals in Guwahati namely, Paltan Bazaar, Muchkowa, Rupnagar and at NH37. The access roads leading to these bus terminals are narrow and encroached by hawkers, shop keepers and parked vehicles. Also, facilities are grossly inadequate within bus terminals in terms of bus bays, boarding alighting platforms and circulation.



(a)



(b)

**Fig.-4 : (a) Alighting passenger count variation with time at various parts of the city
 (b) Boarding passenger count variation with time at various parts of the city
 (Data Source: CMP study by WSA)**

A series of surveys were conducted and data regarding the bus passenger count (alighting and boarding), trip frequency etc., were collected for different routes and time. The purpose of journey for the major portion of the public transit users is Work and Business. (80.56 %)

People attend their work, business and school in the morning time. They go home from work in the evening. So, the peak in the traffic flow and the max number of passengers boarding and alighting is observed in the morning (8:00 AM to 10:00 AM), Evening (5:00 PM to 7:00 PM) and Lunch time (12:00 PM to 2:00 PM). The data collected regarding the bus passenger count with time supports the above said conclusions.

The bus passenger count with time varies with the area in consideration also. The passenger count observed at the places of employment and commercial importance (Fancy Bazaar, Chandmari etc.) is considerably higher than the rest of the places Fig 4(a), 4(b). Prima-facie, this signifies the need for an increased number of buses in the said areas.

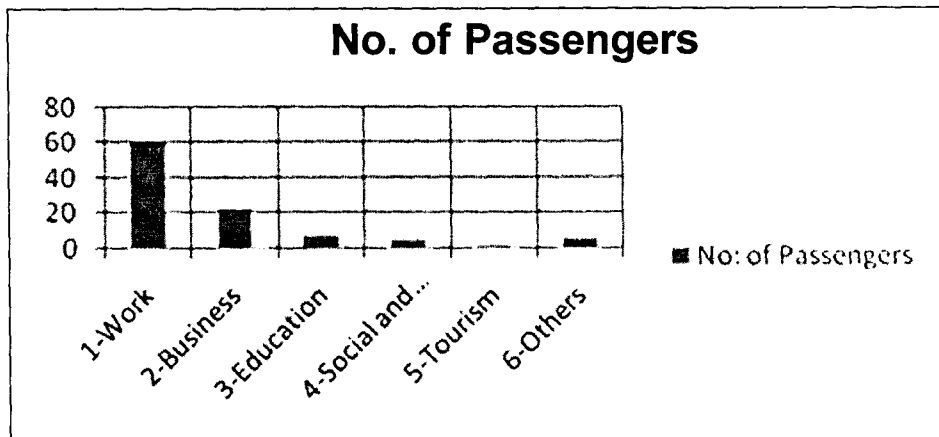


Fig.-5 : Purpose of Journey for ISBT Passengers
(Data Source: CMP study by WSA)

Many people, for the purpose of work and business either come to Guwahati or travel through Guwahati every day. Either way, many people take the help of the local bus transport system for their travel purposes in the city to and from interstate bus terminus (ISBT). Survey was done to collect the data regarding the purpose of journey, trip frequency, mode of travel adapted locally in the city etc. The column bar graph based on the purpose of journey of the passengers travelling through Guwahati was plotted and is shown in Fig.-5.

One of the main issues concerning the bus users is the type of the city buses. An ordinary city bus in Guwahati can accommodate up to 30 - 35 sitting passengers and a maximum of about 45 passengers. The congested arrangement of seats in the bus makes the number even less. Also, the height of the bus is not enough for free standing. The passengers above 175 cm of height usually duck their heads when they travel standing. Changing the type of the bus (adapting a more spacious and bigger model) helps to accommodate more number of passengers without causing any discomfort.

Most of the local bus transport system runs under private operators in Guwahati city. The operators, when given license by R.T.O. for running the public transport services, are given blanket permit for all the designated routes in the city, allowing them to ply their buses freely on any route and on any day. So, the operators, to whom profit is the main criteria, target the routes of high passenger ridership in the peak times aforementioned. This results in competition between government buses, private city buses and trekkers (jeeps, vans etc.). The three modes, therefore, do not complement rather they compete with

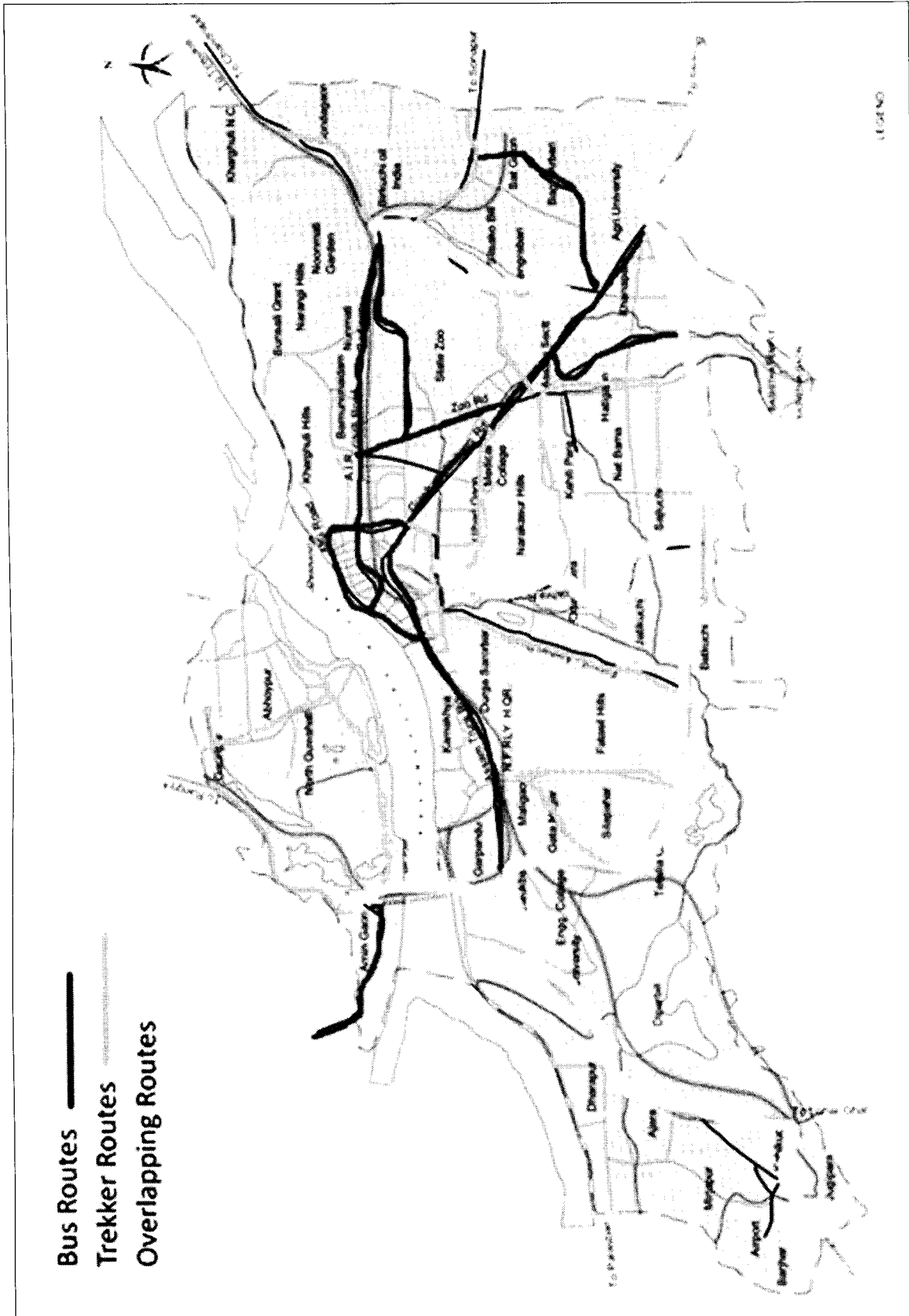


Fig.-6 : Map of Guwahati showing the Bus, Trekker and the Overlapping Routes
(Data Source: CMP study by WSA)

each other. Instead of easing traffic, this increases the traffic congestion in the busy areas. At any instant in the peak traffic time, there are always a minimum of 2 buses queued at the bus bay picking up passengers. However, the rest of the city where the passenger count is relatively low is devoid of the public buses. Fig.-6 shows the routes operated by buses, routes operated by trekkers, and the overlapping routes of buses and trekkers.

One of the other important problems is the bus bays. The total number of bus bays available all over the city is less when compared to the places where the buses stop. The buses stop at any place in the middle of the road to pick up or drop a passenger.

No Segregation of the traffic is observed in the city. Most of the roads in the city are two lane undivided roads. The Buses, two wheelers, trekkers and all sorts of vehicles move alongside each other making the traffic more congested. The traffic would be far more controlled if the traffic is segregated on the basis of the type of the vehicle (especially if buses are provided separate lanes for movement).

Parking of the vehicles is haphazard in most parts of the city. This results in the decrease of the road area, thus enhancing the congestion of traffic. The traffic congestion, heavy traffic jams are more prominent in the areas of high bus passenger count, and the commercial and shopping areas.

INLAND WATER TRANSPORT

Inland water transport is the second most used public transport system in Guwahati after bus transport. Guwahati main city is situated on the southern bank of the mighty river Brahmaputra, whereas the northern bank area is under-developed and mainly consists of industrial areas, educational institutions and some residential localities. The river acts as a transport barrier between North Guwahati and the Guwahati main city and has been a main reason for the underdevelopment of the city on the northern bank. Inland water transport could be a potential system to break this barrier and facilitate the passenger movement across the river in a short time. However, the present inland water transport system is highly under-developed and is therefore not utilizing its full potential. The alternative to this journey is the 20 km detour along the Saraighat Bridge, which is extremely time consuming (Fig.-7). This lack of proper public transport connectivity is the prime reason behind the under development of North Guwahati.

Presently, the ferry services are operated by the state run organizations as well as individual boat owners between the south and the north banks of the river Brahmaputra. The state run ferries with a capacity of about 60-80 passengers and space for 10-20 two-wheelers each make 3 trips between 8:00 A.M. to 10:15 A.M. and 4 trips between 3:00 P.M. to 7:45 P.M. from North Guwahati to South Guwahati. Similarly, from South to North Guwahati, 3 trips are made between 7:30 A.M. to 9:45 A.M. and 4 trips are made between 2:30 P.M. to 7:30 P.M. Besides these, individual boat operators run ferries of capacity 15-20 passengers and 5-10 spaces for two-wheelers, in-between the schedule of state run ferries. Together, the water transport offers a daily capacity of maximum 700 passengers per direction, which is very meager compared to potential travel demand that exists between North and South Guwahati. Besides, poor supply of service the condition of both state run ferries and individual boats is extremely poor and risky (Fig.-8). All of them are old and rusting and run in extremely unsafe conditions with passengers and vehicles standing on top of the boat, posing a security hazard for passengers using it.

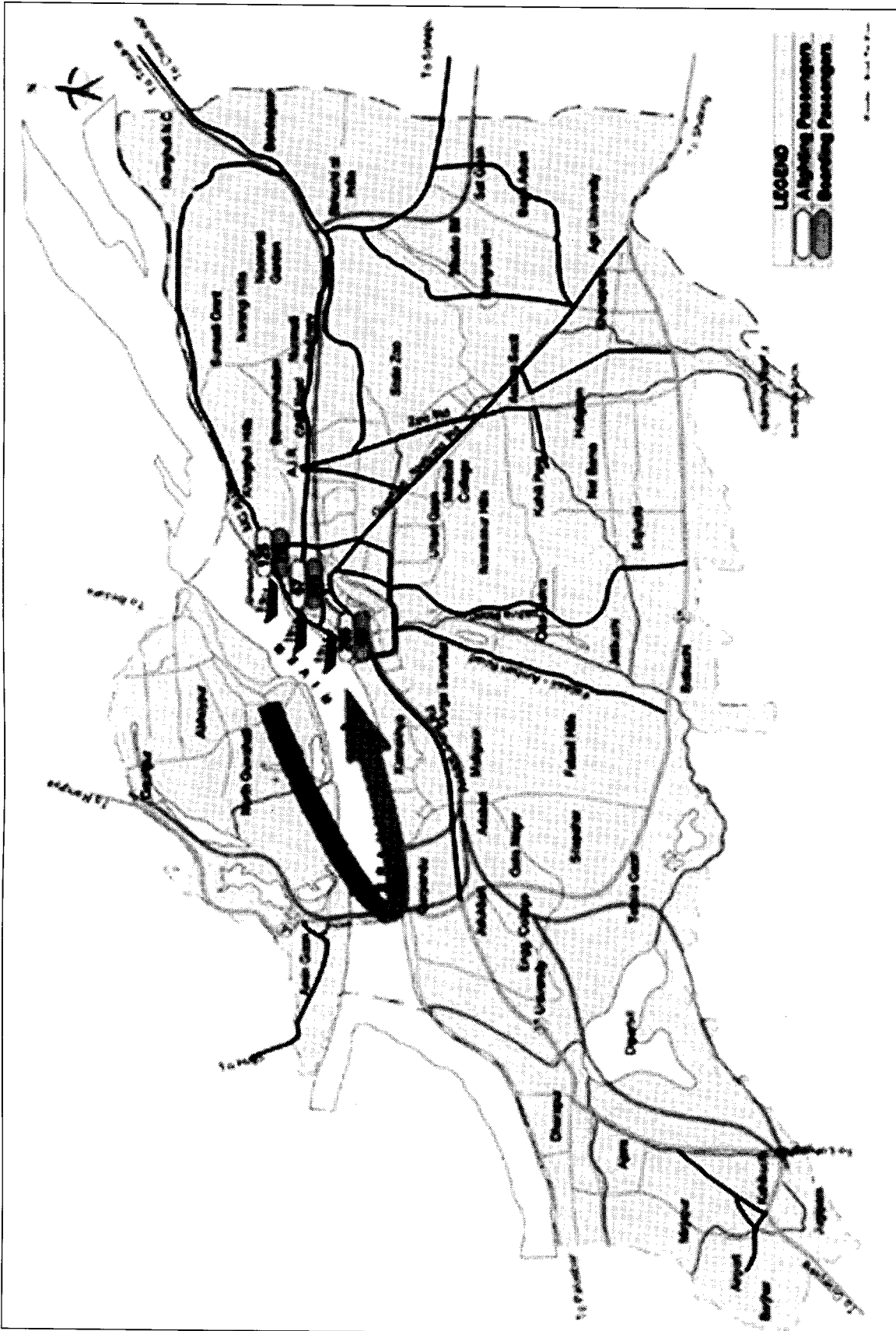


Fig.-7 : Map showing the 20 Km Land Detour taken due to underutilized Inland Water Transport
(Data Source: CMP study by WSA)

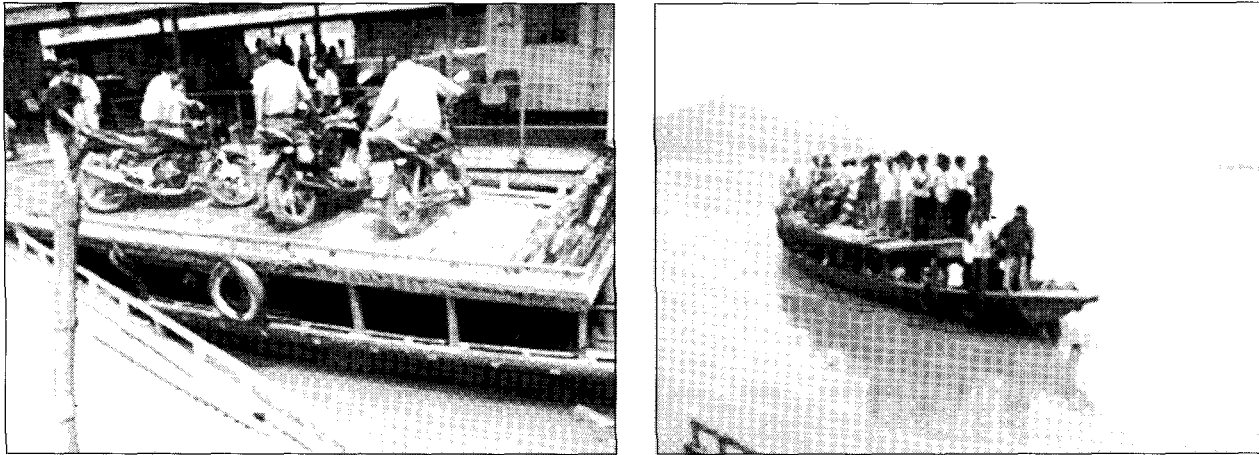


Fig.-8 : Small Ferries (Old and Poorly Maintained) run by Individual Boat Operators

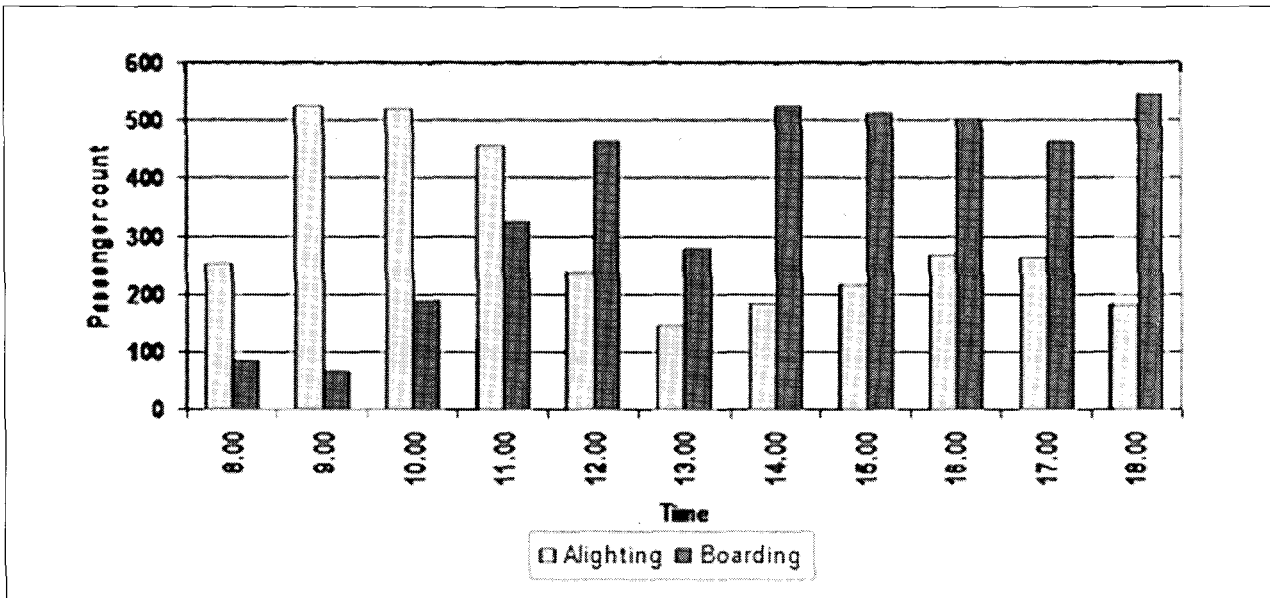


Fig.-9 Passenger count variation with time, Inland water Transport
(Data Source: CMP study by WSA)

Fig.-9 shows the passenger count variation on the basis of time. It can be observed from the data that the alighting values are high in the morning (People come to Guwahati), whereas the boarding values are high towards the evening (People leaving Guwahati after work).

However, the major issue is that the inland water transport system is underutilized, as evident from the low hourly passenger counts. It is run by private people owning a small number of ferry boats, which are in extremely bad condition. The transport system is not properly organized. Overloading of the boats at times takes place resulting in the danger of passengers lives.

Presently, the percentage mode share of public transport system in Guwahati is just 14% whereas that of Non-Motorized transport is substantial at 35% (two-wheeler and car share is 35% and 12%, respectively). This share of public transport is expected to further drop to 12%. Ideally, considering the population size of Guwahati city, the share of public transport (PT) should be between 50%-60%. One of the important reasons for poor share of PT is the present state of public transport (supply), as evident from the analysis done in previous section. Therefore, a substantial scope exists for improving the present PT system. The following sections summarize the problems and issues with respect to PT in Guwahati and also suggest probable solutions.

PROBLEMS AND ISSUES

- *Type of the city bus* : City buses are not spacious enough and can accommodate a larger number of passengers if changed accordingly
- *Proper Routing and Scheduling of Bus Transport* : The private operators are given permit to drive the buses through-out the city at any time and as per their will. Complete route rationalization is required.
- *Lack of Bus Bays* : Due the lack of bus bays, the buses are being stopped anywhere in the middle of the route to pick-up or drop the passengers
- *No Segregation of Traffic* : All types of vehicles travel alongside each other on the road leading to congestion at times.
- *Inadequate NMT facilities and pedestrian crossings*
- *Inadequate parking facilities* : leading to the haphazard parking observed.
- *Underutilized Inland water transport system.*
- *Insufficient road width* : Most of the roads are two lane undivided. With high traffic volume flowing through the city and less usage of public transport, the traffic jams become inevitable at road junctions.

PROBABLE SOLUTIONS TO THE PROBLEMS

- Changing the type of the city bus, thus accommodating more number of passengers
- Sanctioning permits keeping in view the route and time
- Proper scheduling of the buses, ferry boats etc.
- Constructing bus bays at places where alighting and boarding of a considerable number of passengers takes place
- Segregating the traffic, thereby decrease the congestion of traffic

- Improving the pedestrian facilities, parking facilities etc.
- Proper utilization and modernization of inland water transport system
- Road widening to accommodate bus lanes, cycle lanes etc.
- Introducing higher order PT system like light rail system, metro railway system, bus rapid transit system etc., for more sustainable transport of passengers.

CONCLUSION

Keeping in mind the need for a sustainable transport system and implementing the necessary measures, the problems in the Public transport system of Guwahati city can be rectified, thereby making the overall transport system more sustainable and passenger friendly.

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BIBLIOGRAPHY

- Arasan, V. T., Rengaraju, V. R., and Rao, K. V. K. (1994). "Characteristics of trips by foot and bicycle modes in Indian city." J. Transp. Eng., 120(2), 283-294.
- Koushki, P. A. (1988). "Walking characteristics in Central Riyadh, Saudi Arabia." J. Transp. Eng., 114(6), 735-744.