

Planning of New Bus Stand At Jalgaon City

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Abstract- This paper proposes a new bus station plan at jalgaon city. The existing bus station has been major contributor to traffic congestion, road accidents and improper circulation of buses.

This project is therefore geared towards the regularization and planning of bus station to ensure that efficient traffic flow around the bus station. The new plan also focuses on the major revenues, non-foot-steps area for solar panels, employee's health, etc. There is also interest in incorporation of bus terminal amenities to improve the satisfactory operations of bus station. As the population is increasing day by day further modification or redesigning existing terminals is mandatory for benefits of the daily users. Redesign of jalgaon bus station is required for the purpose of providing faster, safer, convenient and comfortable transportation movement for passengers and workers. In this project the goal is to provide improved design and infrastructure view, proper space utilization, new required elements can be introducing in decent manner.

Keywords- plan, buses ,bus stand, bus depot, MSRTC(Maharashtra State Road Transport Corporation)

I. INTRODUCTION

Bus transport is an important mode of public transport in Jalgaon, which is a district of 15 talukas. Bus transport facilitates public transport to rural areas in the district and also to distant places in the state in affordable rates.

The bus transport is governed by 'MAHARASHTRA STATE ROAD TRANSPORT CORPORATION' (MSRTC) in Maharashtra. The current ST (STATE TRANSPORT) bus station in Jalgaon is located near Swatantrya Chowk beside Gandhi Udyan, survey no. 325 and survey no. 326. The very first construction was done in year 1971. The area is approximately 12 acres.

Also the bus stand has the shivshahi buses along with the regular buses. The bus stand has 7 departments running the whole bus stand efficiently such as construction department, Statistics department, Accounts department, Traffic

department, Labour department, Security department and Personel department.

As the road in front of the bus stand is crowded much, and the entrance as well as exit is along same side of the, there are often traffic congestions on the spot also leading to major and minor accidents. The no. of bays are 16 at existing bus stand which need to increase for better and effective management. There is need to install some amenities for effective management and passenger's satisfaction. Shops complex should be added to the bus stand for more revenues as well as passenger's satisfaction. The need of some energy saving ideas is also there.

So, there is a need to propose an alternate improvised design for the bus stand with entrance and exit at different sides, which will help to reduce traffic congestions and accidents.

Also the new and alternative design will include innovative features and functional aspects for the public. The new design of bus stand is planned on the same place of the existing bus stand.

II. OBJECTIVES

- To propose a new bus stand plan in order to reduce traffic congestion, provide proper circulation and regularization of buses.
- To plan a spacious and comfortable bus stand, maintain high service quality and to save electricity.

III. LITERATURE REVIEW

Following are the literature papers referred for this thesis:

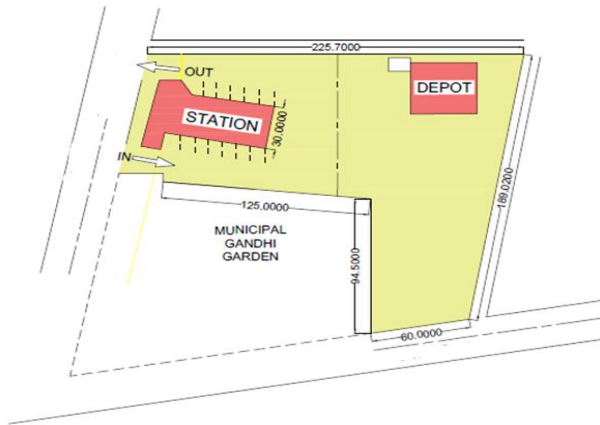
- Jay S. Pandya, prof.Yogesh Patel (2018),Public transportation is one of the key things in development of country in many ways. Thus proper utilization of various resources related to transport should be evaluate, identified and modified as per the requirement. As the population is increasing day by day further modification or redesigning existing terminals is mandatory for benefits of the daily users. Redesign of Gandhinagar bus

terminal is required for the purpose of providing faster, safer, convenient and comfortable transportation movement for passengers and workers. In this study the goal is to provide improved design and infrastructure view, proper space utilization, new required elements can be introducing in a decent manner. Gandhinagar is the capital of Gujarat state. There are so many government offices; industries are located in the city.

- K. Prathibaa, Dr. K. Gunasekaran (2016), The bus stop is the first point of contact between the passenger and the bus service. To improve the quality of bus services bus stop is recognized as a crucial element. Bus stop layout should enable safe and smooth flow of bus and passengers. Most bus stops in Chennai are along the public sidewalk, with signage marking, and in some cases, with a bench or small shelter. It is observed that congestion occurs at bus stops due to deceleration, stopping and acceleration of buses on the carriageway and accidents occur due to lack of facilities for safe passenger movements at bus stops. This study is planned to identify planning aspects for ideal location of bus stop to increase accessibility, to suggest optimal layout of bus stops, and to examine the impacts of the interactions between buses, passengers and traffic on delays and capacity at bus stops. The passenger service time, dwell time of buses, arrival pattern of buses and passengers at bus stops, stop delays are analyzed. This suggests the necessity of microscopic simulation to study the capacity of bus stops. Results indicate that it is important not to underestimate the real situation found at bus stops, as designing for ideal conditions will be insufficient if the reality is different. Application of these results will improve the performance of the bus system as a result of a better understanding of its operation leading to simple changes in the design of infrastructure.
- Kevin Jingyi Zhang (2012), Bus Stop Urban Design (BSUD) seeks to improve the waiting environment at bus stops through urban design techniques. Because bus stops are embedded into the neighbourhood, improvements will not only benefit the riders, but also the immediate urban realm. A more comfortable waiting environment leads to greater rider satisfaction and shorter perceived wait times, leading to higher ridership. A well designed public space may lead to greater walkability in the area and a safer environment that is more conducive towards active transportation for local residents. The project identifies 7 major goals in designing a good bus stop: safety, thermal comfort, acoustic comfort, wind protection, visual comfort, accessibility, and integration. The goals are achieved by 9 techniques: lighting, seating and surfaces, cover, amenities, information, vegetation, traffic management, pedestrian infrastructure and bicycle infrastructure. These 9 techniques are then applied to 9 bus stops in Metro Vancouver, ranging from major exchanges to remote stops. Beyond testing the identified goals and techniques in existing settings, the design section also demonstrates that with appropriate urban design expertise, municipalities can quickly develop and visualize public space designs with low costs and widely available technology.
- Munzilah Md. Rohani, Devapriya Chitral Wijeyesekera, et.al (2013), This paper outlined the important role played by public transport to meet the demand of business and social life. The paper reviewed the type of bus services, quality of service in the bus operation that influences the passenger decision and also the role of bus provider and bus driver. An improved understanding of the bus operation is important for a well managed bus services. Maintaining a high standard of quality in service and performance is of paramount importance to encourage people to make public transport their preferred choice.
- Otieno Isdora Awino (2014), The existing informal Mwiki bus terminus has been a major contributor to traffic congestion and delays along the Kasarani-Mwiki road. It has also been of economic value to the people of Mwiki. This project therefore is geared towards the regularization and design of the Mwiki bus terminus to ensure that efficient traffic flow around the Mwiki bus terminus and along the Major Kasarani-Mwiki road. There is also interest in the incorporation of the bus terminus amenities to improve the satisfactory operations of the bus terminus. The design process entailed a series of steps including problem identification (through a prior research project undertaken), a detailed situational analysis and interpretation, design of alternative proposals and choice of the preferred alternative, a detailed schedule for the project implementation, monitoring and evaluation is also incorporated. The development project is based on the regularization and design of the Mwiki bus terminus as it effectively addresses the problems in the area.

IV. METHODOLOGY

4.1 Layout of Existing Bus Stand



LAYOUT OF EXISTING BUS STAND, JALGAON.

4.2 Analysis of Existing Bus Stand

- Year of construction: 1971
- Bus stand address: survey no. 325, survey no. 326
- Total area: 29442 sq.m (7.275 acres)
- Cost of construction: 3-4 lacs (10-12 crore as of now)
- Population: 460228 (as per 2011)
- No. of starting buses: 476+533=1009
- No. of touching buses: 952+1066=2018
- At present, no. of starting buses in any hour: 46 (7am-8am)
- At present, no. of touching buses in any hour: 70 (7am-8am)
- No. of persons working control cabin: 4
- No. of crews to use rest rooms: 20 crews
- No. of persons remain for night out: 20 persons
- No. of platforms: 16
- Shivshahi buses: 10-15
- Night out buses: 30
- Bus size: 10.60*2.50*3.30
- Average bus life: 8 yrs
- Efficient cost of a bus: 37rs/km approx.
- Average bus stay duration: 20 min

4.3 Amenities in New Plan

- Temple
- ATM
- Swimming tank

- Yoga centre
- Clinic

4.4 Solar System

The aim of project is also to save the electricity by using solar energy for lightings in following two ways-

- The solar panels can be added to the non footsteps area like rooftops of toilets, bathrooms, water tanks, etc. If the lightings of respective things will be done, that will be also enough. This will save the electricity.
- The space is provided by bus stand for advertisement banners can also be used to install solar energy system, it will also save electricity. The users of that advertisement banners should compulsorily install the solar energy system by using strips on the upper edges of banners. If the system gives only lightings of that banners that will be also enough.

4.5 New Proposed Plan

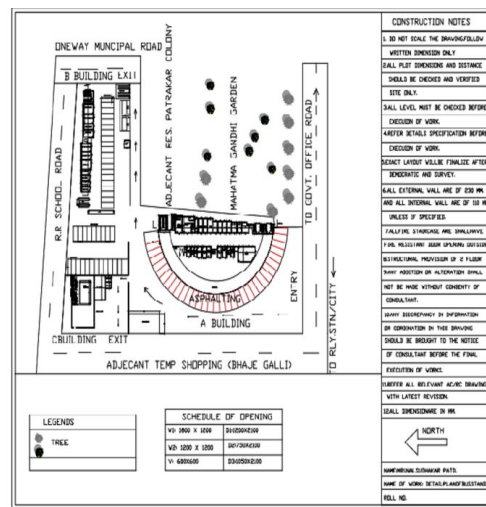


Fig: Main sheet

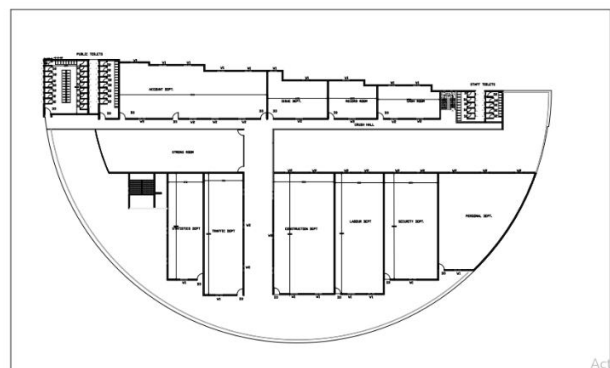


Fig: First Floor plan A

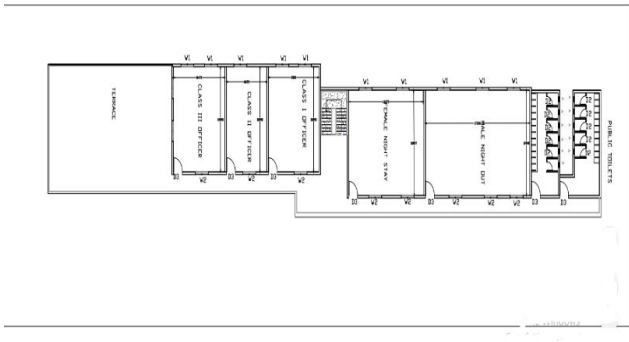


Fig : First Floor Plan B

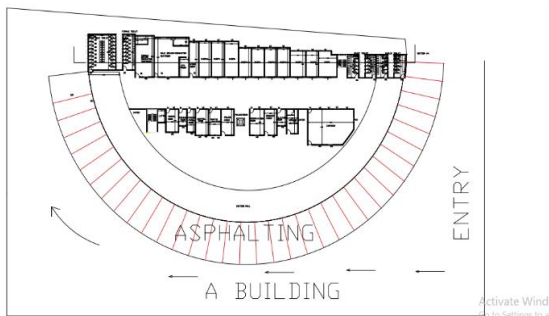
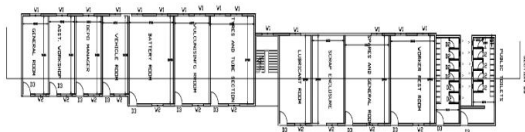
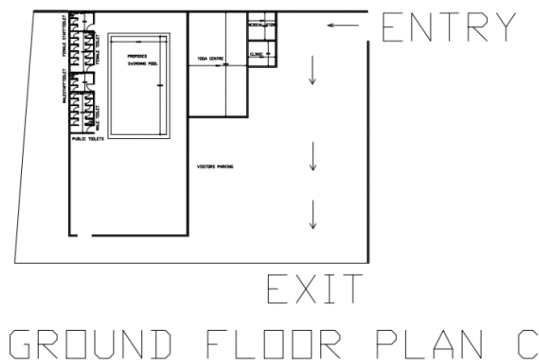


Fig : Ground Floor Building A



B BUILDING

Fig: Ground Floor plan B



GROUND FLOOR PLAN C

Fig: Ground Floor Plan C

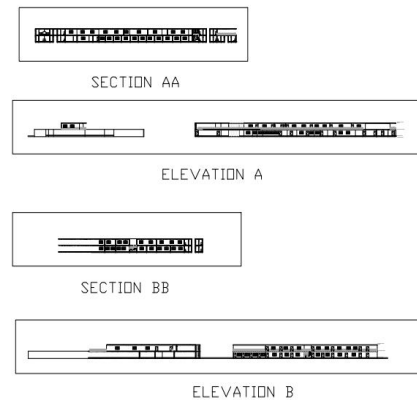


Fig: Elevation Section

V. RESULTS AND DISCUSSION

- Traffic congestion will be reduced.
- Regularization and proper circulation of buses will be achieved.
- High quality of service will be achieved
- Employee’s health will be considered as important.
- Spacious and comfortable environment will be provided to all.
- Smart amenities will be provided to public.
- Electricity will be saved

VI. CONCLUSION

The jalgaon bus stand plan is proposed in such a way that it will reduce traffic congestion, provide proper circulation and regularization, utilize the space well and maintain the service quality high

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