

A STUDY ON PROVISION OF PARK AND RIDE FACILITY FOR SMART CITY BELAGAVI

Simra Desai¹, Tanaj Dodamani², Gouri Meni³, Swati Nennekar⁴, ⁵Asst Prof. Manjunath Sharanappanavar, ⁶Dr. V. M. Devappa

^{1,2,3,4} Student, Department of Civil Engineering, S.G. Balekundri Institute of Technology, Belagavi, Karnataka, India

⁵ Assistant Professor and Project Guide, Department of Civil Engineering S.G. Balekundri Institute of Technology, Belagavi, Karnataka, India,

⁶ Professor & Head, Department of Civil Engineering S.G. Balekundri Institute of Technology, Belagavi, Karnataka, India

Abstract - Transportation system management is one of the most important and current needs to solve urban traffic problems. Managing the Congestion capacity within the existing system is the need at present. One of these management techniques is provision of park and ride facilities. In the current study, various parks and ride facilities are been implemented all over the world, and looks at provision of park and ride facilities especially in the suburban. The proposed location is 1.7 km from center of Belgaum city (Kittur Rani Chanamma circle). A traffic survey was conducted to determine potential travel needs and park and ride facility capacity. A poll was conducted to assess commuters' willingness to use the system Fare settings and amounts to be charged. The resulting mode shift is estimated. This report provides guidelines for designing park-and-ride facilities for automobiles and bicycles. special, The guidelines have been developed to: Find a park-and-ride space and determine the desired size of park and ride, the layout of the parking lot. The guidelines developed should be of maximum benefit and the People familiar with the parking lot design and involved in the design of a new park and ride facility.

One of the problems caused by road traffic is parking. Vehicles need more than just interior space. There is also a parking space for residents to load and unload as well as a moving street. is estimated to be from 8,760 hours per year, average 400 hours driving and 8,360 hours stationary while parked. Every car owner wants to park their car as close as possible to their destination to minimize walking distance. As a result, there is a growing demand for parking spaces in areas such as the CBT. With more cars, the parking problem is getting bigger and serious. Systematic study of parking is taken into consideration, measures to regulate parking would be of great help to both traffic engineers and cities planner. Park-and-ride parking, also known as encouraged parking or commuter parking, It is a parking lot connected to the public transport that commuters and other travellers come to the city. Park your car in the centre. You can travel using public transport like bus or train system. Interest in park-and-ride facilities has increased in recent years. Most park-and-ride services to date have used existing parking lots. However, local governments are starting to build new parking lots specifically designed for this purpose.

Key Words: Park and Ride, Transit, Terminal Design, Mass Transit, Bus Rapid Transit.

1.INTRODUCTION



This report is divided into four main sections. The first section gives the guidelines for selection of the location for park-and-ride lots. The second section discusses various factors that affects the size of the park and ride space. The third section identifies the design capabilities of the selected components of park-and-ride lot. And for the last section the layout of the Park & Ride area is presented.



Fig.2 STUDY AREA IS LOCATED AT ASHOKA CIRCLE

1.1 Ease To Use

Park-and-ride facilities allow commuters to avoid the stress of driving in the busy areas of travel and securing expensive downtown parking space that is scarce. They aim to avoid congestion by encouraging people to use public transport instead of their cars. They do this by making public transport accessible in crowded urban areas, often reducing the availability of parking to facilitate this behavior.

Park-and-ride facilities meet the needs of commuters who live within walking distance of train stations and bus stops that provide connectivity to the city center.

1.2 Problem Statement

One of the problems caused by road traffic is parking. Vehicles need not only space to move on the road, but also parking space for occupants to load and unload. Of the 8,760 hours a year, it is estimated that an average of 400 hours of driving and 4,444 hours of parking will be 8,360 hours. All car owners want to park their car as close to their destination as possible to minimize walking distance. Traffic and parking are increasing in densely populated areas of people. The task is to minimize traffic. In light of these issues, we plan to develop a park-and-ride facility that allows public transportation to be used instead of private cars.

Solution: Park-and-ride facility

Considering these issues, we plan to provide a park-and-ride facility so that people can use public transportation instead of private cars. With the increase of cars, the parking space problem is becoming more and more serious. A systematic study of the characteristics and demands of parking spaces and possible regulatory measures for parking control will be of great help to both traffic engineers and urban planners. Park-and-ride parking, also known as incentive or commuting parking,

is a parking lot connected to public transportation where commuters and other travellers to the city centre park their cars. You can transfer to the bus or train system.

2. METHODOLOGY

During the pre-design phase, you may have some flexibility in the approach you use when implementing park-and-ride services.

This section describes several factors that affect where park-and-ride facilities are offered. Guidelines are provided to identify the desired park-and-ride location. Address the question of whether to develop a new park-and-ride facility or place a park-and-ride service in an existing parking lot. The basic idea of park and ride is simple. However, this cannot be done completely without proper planning, implementation, and maintenance. Therefore, here are some best practices to keep in mind to get the most out of these features:

1. Select an easily accessible area. Park-and-ride facilities can be well provided when parking is on the edge of an outdoor area away from normal traffic jams. The location must also provide a direct connection to the public transport network. Therefore, identify the ideal location and choose the best one among them.
2. Reanalysis of transit frequency. Providing this functionality does not mean that the analysis of transport patterns should be stopped on a regular basis. Transit activity should be carefully monitored, at least quarterly.
3. Always plan new strategies to ensure that your service evolves over time. Implement the new one along with the existing one.
4. Don't forget to gather and channel support from the general public and stakeholders to educate commuters about the amazing benefits of park-and-ride. Park-and-ride services have long been available in many parts of the world. But only a few years ago, when the number of vehicles on the world's roads began to grow significantly and the solution was urgently needed, the true value of this intermodal urban mobility solution was realized. Also how! A well-implemented park-and-ride system can relieve travel stress and save commuters time and money. Reducing pollution levels is an additional benefit. Therefore, when it became necessary to spread this service to as many urban areas as possible. 3 types of Park and Ride facility

1. **Bus Park and Ride:** A location in or near the city where you can park your car cheaply and get to the center by bus or other public transport: The easiest way is to start. Your car at park and ride.
2. **Railway Park-and-Ride:** Park-and-ride parking lots are located near several subway and rail stations. Bicycle and vehicle facilities typically have a bicycle parking lot adjacent to the transit stop, allowing transit riders to travel to the stop without using a car.
3. **Car Sharing Park and Ride:** Arrange for a group of people to drive together to work or school. Carpooling (also known as car-sharing, ride-sharing, or lift-sharing) allows multiple people to share a car and travel in one car, allowing others to identify themselves. Becomes Eliminate.

According to the All-State Association of Highway and Transportation Authorities (AASHTO), suburban park-and-ride parking lots are typically defined as parking lots located between 4 and 30 miles from the CBT and offering intermodal or alternating service. increase. A prerequisite is that these are on the outer edge of the cityscape. They should have the potential to collect traffic as close to the origin as possible and act as forwarding and intermodal forwarding points. The expected modal shift is between private and public transport. Therefore, the following guidelines have been formulated when choosing Park and Ride locations:

1. Lot P+R should be at the intersection of CBT and suburban area.
2. Intended to serve as an ideal collection site for the Suburban Catchment.
3. Must have sufficient space for offsite parking with minimal capital cost.
4. Must be in close proximity to public transportation.
5. Much of the traffic has to pass through the P+R area.

3. RESULT AND DISCUSSION

According to the opinion survey carried out, the results obtained gives us the following conclusions. Maximum people are happy with this park and ride system and showed interest in the project

1. Total opinion survey sheets collected from the people are 500
2. The maximum number of people willing to pay Rs 20 for 2W is 160 out of 500
3. The maximum number of people willing to pay Rs 30 for 3W is 100 out of 500

Therefore we come to a conclusion that we can go for the execution of the park and ride facility

Sl.No	PARTICULAR	TOTAL
1	Total Amount of opinions collected	500
2	Number of people willing to pay	460
3	Number of people willing to pay Rs.10 for 2W	100
4	Number of people willing to pay Rs.20 for 2W	160
5	Number of people willing to pay Rs. 30 for 2W	10
6	Number of people willing to pay Rs. 20 for 4W	50
7	Number of people willing to pay Rs. 30 for 4W	100
8	Number of people willing to pay Rs. 40 for 4W	40

Fig 3.1 : Summary Sheet for Opinion Survey

4. CONCLUSION

As per the study conducted the Traffic and Travel Characteristics are found as follows at Project Site.

As per the study conducted Demand of Park and Ride system is estimated as 90%.

Based on the data collected and analysis park and ride system is Design with following characteristics.

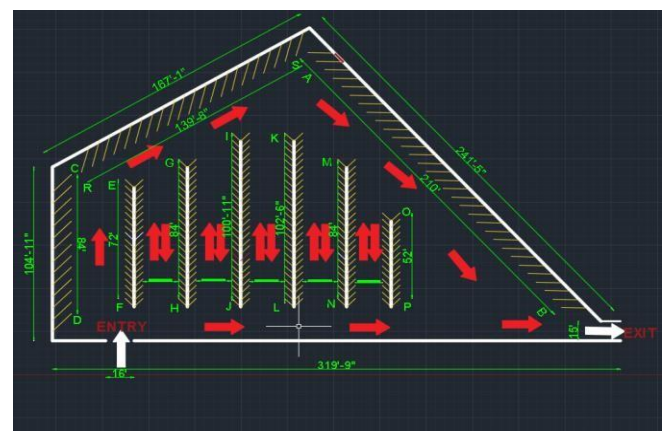
Parking lot size: size of car parking space **16X8**

feet and Size of 2 Wheeler space **7X3** feet.

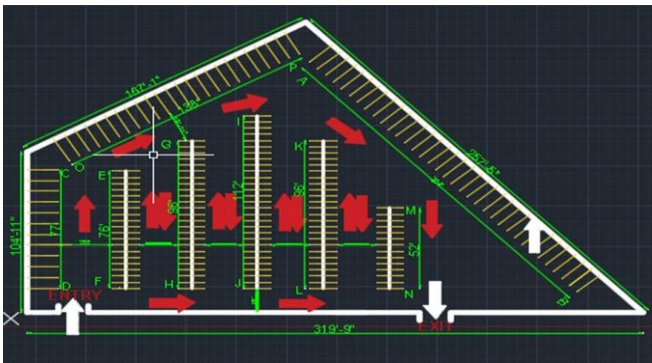
Total area: 37395.79sqft

Total capacity for 45° angle parking: 312 stalls.

Total capacity for 90° angle parking: 277stalls.



45° ANGLE PARKING



90° ANGLE PARKING

Number of entry: 1 Number of Exit: 1

Note: Type of parking suggested is 45° angle parking.

As per the data analysis for the proposed park and ride system approximate investment is estimated as 21, 22, 267.4/-INR and Total revenue generated per year is 2503900/-INR

5. FUTURE SCOPE

- The cost-benefit analysis of the project can be performed for different scenarios and alternatives.
- The ability to manage such sites along the metropolitan area boundary and propose Park and Ride facilities can be viewed.

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