

REVIEW PAPER ON STUDY OF MIXED PARKING AREA FOR FOUR WHEELERS AND TWO WHEELERS

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Abstract – This work summarizes the ongoing researches about the study of mixed parking area for four wheelers and two wheelers at PGI Chandigarh. The main focus of this research was to improve the parking problems of PGI Chandigarh. Shortage of parking space is turning out to be a big problem at the Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. It isn't just a problem of staff or patient, it's a trouble for anyone who works at the premier institute. How many lives are put at risk because those accompanying patients have to struggle to find a parking space while a patient's condition deteriorates. A recent study has found that more than 13,000 vehicles, including around 7,000 cars, enter the institute everyday against the parking capacity of just over 3,000 cars. The excessive delays occur with low running speeds and traffic congestion at various junctions and midblock sections. The biggest parking facility at the institute is the multi-level parking in front of the new OPD building. It has a capacity to accommodate 550 cars. The institute is mulling to construct a new parking facility with capacity of around 750 cars at a cost of 119 crore. It will be the biggest parking facility at the institute and will be built in the area between the New OPD block and Advanced Eye Centre. To find a parking space at PGI is not an easy task. The institute has around 9,000 employees and it caters to around 6,000 patients in outdoor patient department everyday and around 2,000 patients remain admitted for the indoor care. Not only patients, even doctors and employees are facing the parking problem. Each day from 9am to 10pm, the road leading to the PGI witness traffic jam. Many patients and their relative's park vehicles in the sector 11 market, while others leave cars alongside the road.

Key Words: car parking, parking accumulation, parking area, delay, congestion...

1. INTRODUCTION

India is a developing country. It has the second largest road network across the world at 4.7 million km. This road network transports more than 60 percent of all goods in the country and 85 percent of India's total passenger traffic. Road transportation rapidly increased over the years with the improvement in connectivity between cities, town and villages in the country.

The Indian roads carry almost 90 percent of the country's passenger traffic and around 65 percent of its freight. In India sales of automobiles and movement of goods by road is growing at a rapid rate. Cognizant of the need to create an

adequate road network to cater to the increased traffic and movement of goods. Congestion has clearly grown year by year. It has created a number of problems. Due to congestion, it takes longer time to reach at work in the rush hours. Parking system can also take advantage of innovative technologies in order to improve the ease and convenience of payment charges/rates for parking. Proper design of parking space is very important for good transporting system. If there will be lack of parking space and facility then it will be a disorganized condition for everyone. But designing of any parking facility is not an easy job. It seeks a lot of parameters which we need to know, we need to find out with the help of simple data by applying some techniques.



Congestion trends in urban area.

1.1 Parking problem in Chandigarh

A necessary element of a city is parking. The supply of parking spaces in Chandigarh is a growing concern among planners and residents. On residential streets, car owners are parking cars in lanes, although separate parking areas can be developed. In the markets, auto rickshaw, two wheelers, and cars are parked in haphazardly often by not using the proper place. Since Chandigarh is a planned city provides parking areas nearly everywhere for parks, schools, markets and officials. However the daily influxes of cars from outside the city and the high number of vehicles per household have resulted parking shortage in most of the areas. Large market areas such as Sector 22 and the Madhya Marg markets experience the most congestion. Although there are pay-to-park systems lots are consistently full during the day especially between 5:00 pm to 9:00pm daily. It is observed that the parking shortage was often due to inefficient use of the lots rather than lack of space. Drivers frequently ignore marked spaces taking up as many as two

full spaces with one vehicle. Consequently a full lot will contain fewer cars than the spaces available.

1.2 Problem Statement

Parking plays an important role in mobility, access and the economic development of cities at the same time. It is a profitable business for both the private and public sectors. The car parking market is a sector of the economy that has increased in importance as the market for cars has grown. The car parking sector has always been of great importance in terms of urban mobility since it is a fundamental element in achieving a high level of accessibility in the city centers. In fact, many businesses and municipalities see an adequate supply of parking especially for visitors as crucial for their competitive growth. As per the number of cars increases with no initiative and alternatives to combat the current scenario, many problems arise especially to the limited number of parking lot. This can give a significant effect especially to commercial property. Parking issues come from the public behavior itself. The public come to the market and simply park their vehicle anywhere and everywhere they like. Ill-effects of parking are listed as congestion, accident, pollution and obstruction to fire-fighting operations etc.

2. LITERATURE REVIEW

Bonsall (1991) [1] presents various data collection methods that are used to gather information on parking spaces. He also discusses the role of technology in the advancement of these methods as well as the availability of data to assess the use and impacts of parking spaces.

Axhausen and Polak (1991) [2] use stated preferences data to model travelers response to changes in parking attributes and show that journey purposes has a strong impact on the value of time and consequent parking choices.

Shiftan and Burd-Eden (2001) [3] also use stated preference survey data to model the likely response of drivers to parking policy alternative (increase in parking costs and decrease in parking availability). They found that workers are more likely to change mode or time of travel than to change destination or activity. They also found that non-workers are more sensible to policies than workers.

Tong, C.O, Wong, S.C, Leung, and B.S.Y (2004) [4] present a method based on cluster analysis to construct aggregate parking accumulation profiles at car parks to increase the efficiency of survey data collected for this purpose. Accumulation profiles reveal the number of cars parked at various locations throughout the day. These authors state that such profiles assist transport professionals in the decision process. Actually they can validate parking demand models assist the development of real time parking information systems or be used to evaluate various traffic management strategies.

Marsden (2006) [5] provides an interesting review of the literature relating to the behavioral response of drivers to a series of real or hypothetical parking policies. He concludes that the assumption that parking constraint makes centre less attractive and discourage. Economic development is not confirmed and needs to be challenged.

Alberta and Mahalel (2006) [6] present a study aimed at evaluating the differences in attitudes towards congestion tolls and parking fees in order to predict the impact of each of these policies on demand for trips and on travel behavior. They use data from a stated preference survey. They show that congestion tolls have a greater impact on travel behavior than parking fees and suggest that this is due to the fact that the latest are more accepted and that it is more appealing to choose another time for the journey (and avoid tolls) than to change destination.

Kelly and Clinch (2006) [7] discuss the variance of price impacts on different trip purposes initially and as tariffs increase progressively. As they say with much of the research examining how parking policy will affect cars and congestion in the network clearly there is individual impacts which must also be investigated. They use on-street survey data to measure such impacts.

Objectives and Scope of Study

- > To determine existing parking demand and its characteristics for Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh.
- > To resolve and examine existing parking area for Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh.
- > To resolve future parking needs. The parking of past year is studied and other alternatives are discussed.
- > To resolve the peak hours in which the vehicle congestion takes place

3. CONCLUSIONS

On the basis of the investigation, the following conclusions have been made Parking is an acute problem worldwide if parking is not properly designed it will lead to the following ill-effects.

Congestion: Parking takes considerable street space leading to the lowering of the road capacity. Hence speed will be reduced, journey time and delay will also subsequently increased. The operational cost of the vehicle increases leading to great economical loss to the community.

Accidents: If the parking operation i.e parking and un-parking is not done with Care, it will leads to accidents which are referred to as parking accidents. Common type of parking accidents which occur while driving out a car from the parking area are careless opening of the doors of parked cars and while bringing in the vehicle to the parking lot for parking.

Environmental Pollution: Parking also causes pollution to the environment because stopping and starting of vehicles while parking and un-parking results in noise and fumes. Which causes not only environmental pollution but also affect the aesthetic beauty of the buildings because cars parked at every available space creates a feeling that building rises from a plinth of cars.

Obstruction to Fire-Fighting operations: Parked vehicles may also obstruct the movement of firefighting vehicles during fire. Sometimes they block access to hydrants and access to buildings.

Therefore it is necessary to design and analysis the parking lots so as to minimize the above ill effects of parking and make the movement and operation of vehicles smoothly on the roads.

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