

Redesigning & Planning of a Commercial Building - A Solution to Parking Issues in CBD Area - Vadodara City

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ABSTRACT

Shortage of on-street parking space in the urban Central Business District (CBD) is the common problem in Indian cities. In Indian cities, due lack of off-street parking and poor service quality of transit system in the CBD area; visitors are forced to park their vehicle on the streets leading to create huge on-street parking demand. The objectives of this study are to provide good parking facilities and improved design flexibility, creating more functional and attractive communities. One CBDs, namely Padmavati shopping centre (shopping area) is chosen as the case study area.

Keywords - Parking Problem, Architectural Concept, Planning, Component, Survey

I. INTRODUCTION

Parking, an integral component of the transport system, is a serious problem that confronts the urban planner and traffic engineer, as it plays a crucial role in the management of traffic and congestion mitigation. The provision of parking facilities is, therefore, an essential element of the highway mode of transportation. It is also noteworthy that a personal vehicle is on the move hardly for 2 to 3 hours in a day, while for the remaining period it is "parked" at the residence or destination and sometimes end route. Even commercial vehicles will be found to be parked for about 70% of the time on an average. Parking building is used for safeguarding the user vehicle. Successful parking structures meet the user demands. It includes feeling safe and knowing that their cars are in a secure environment. If the provision of the parking area is unplanned so there is a need to make an improvement in the parking area. India is the developing country, therefore, the day by day the traffic flow is increased. Due to increase in population, the use of the vehicle is also increased and resulting in the traffic problem and traffic congestion is increased. So, there is lack of parking space available for vehicles. There should be some solution for such kind of traffic problem.

This project suggests such solution, which may solve the problem and may provide an opportunity for a smart project for the smart city. In Vadodara, CBD area is located near Padmavati shopping centre at Nyaymandir. The area is highly congested and having lack of availability for parking space on road or off the roadside. The project "REDESIGNING AND PLANNING FOR A COMMERCIAL BUILDING USING ARCHITECTURAL CONCEPT" is mainly based on the regarding of the building namely Padmavati shopping center. "Padmavati shopping Centre" is considered as the main attractive point for the people residing near Vadodara and its surrounding areas. For such reason, an idea is to suggestions to expand it more to give benefits to people and society. An idea is to plan a good and attractive planning which can attract people and have proper parking facilities in place of the present condition. The market is near the CBD area. So, it will beneficial for cost redemption or deduction of cost over a period. So, the project involves reconstruction of the building which has a shopping Centre, recreational Centre, play zone hotel, parking facilities etc. If the parking problem of the city may have solved, it will helpful for the surrounding for better atmosphere also. As a parking problem will be solved, overall pollution

may be reduced and also the aesthetic view of

II. Need for Parking Study

Parking is one of the serious problems that confront the urban planner and traffic engineer. Before any measure for the betterment of the conditions can be formulated basic data pertaining to the availability of parking space, the extent of its usage and parking demand are essential. If it is proposed to implement a system of parking charges it will also be necessary to know how much to charge and what will be the effect of the pricing policy on parking. Parking survey is intended to supply all these kinds of information.

India it is roughly estimated that out of 8760 hours in a year the car runs for an average of only 400 hours leaving 8360 hours when it is parked. Increasing concentration of human activity on limited land both in terms of residential activity and commercial activity causes the parking problem. Every car owner would wish to park the car as closely as possible to his destination so as to minimize his walking distance. This result in great demand for parking space in the central business district (CBD) and other areas where the activities are concentrated.

III. Objectives

- To study existing parking conditions.
- To carry out parking studies.
- To formulate strategies for better management for parking.
- To provide good parking space facilities.
- To reduce parking problem
- Improved design flexibility, creating more functional and attractive communities.
- Ability to accommodate new uses and respond to new demands.

IV. Scope of Study

surrounding may be improved.

There is need to conduct a survey on the availability of all vacant spaces both public and private, to explore the possibility of converting such places into parking areas. The extent of Padmavati shopping centre is 3600 Sq.m. Figure. 1.1 Is showing the existing land use details of Padmavati shopping centre area.

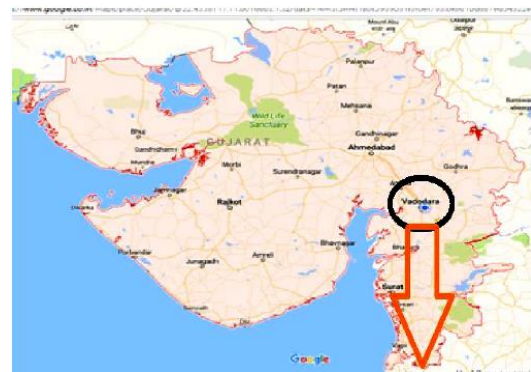


Fig 1.1(A) study area profile



Fig 1.1(B) location of that area

V. Methods of Parking Studies

1. In-Out Survey.
2. Fixed Period Sampling.
3. License Plate Method of Survey.
4. Inventory of Existing Parking Facilities.
5. Collection of Parking Data.
6. Parking Usage Survey by Petrol.
7. Questionnaire Type Parking Usage Survey.
8. Cordon Count.

LOCATION OF SURVEY NAME :			
ORIGIN & DESTINATION:			
TOTAL TIME OF SURVEY:			
DAY OR DATE OF SURVEY:			
TIME FROM	TIME TO	MOTOR CYCLES	CARS
09:00 AM	09:05 AM		
09:05 AM	09:10 AM		
09:10 AM	09:15 AM		
09:15 AM	09:20 AM		
09:20 AM	09:25 AM		
09:25 AM	09:30 AM		

VI. METHODOLOGY AND DATA COLLECTION

In-Out Survey: The survey techniques and data collection to fulfil both the objectives are discussed in this section. In-out survey, Parking inventory survey, questionnaire surveys and are carried out for this study to collect the data regarding above mentioned variables. Parking facility, the capacity of the lot, land use area, etc is estimated using the parking inventory survey. In-out survey technique is used to determine the accumulation

and the occupancy of the parking lot. Initial occupancy of the parking lot is taken. The number of vehicles entering and leaving for a time interval is counted. And at the end, final occupancy of that lot is also taken. The manpower required for this survey is very more. The survey was carried out from 10:00 hours to 22:00 hours in the shopping area on weekends. Parking duration and turn over cannot be determined from this survey. In this survey, we had carried out data collation at every 5 minutes.

We had done this survey of In Out survey nearby padmavati shopping center. And we had done the survey. And all the data are given below:

TIME	1	2	3	4	RESULT
10-Sep	9	18	46	4	77
11-Oct	40	56	140	59	295
12-Nov	47	75	69	111	302
1-Dec	55	76	64	86	281
2-Jan	56	68	48	73	245
3-Feb	60	71	51	70	252
4-Mar	39	59	44	78	220
5-Apr	42	57	32	89	220
6-May	36	68	35	63	202
7-Jun	34	58	38	67	197
8-Jul	35	48	14	44	141
9-Aug	17	37	4	24	82
10-Sep	-	2	-	-	2

VII. Questionnaire Type Parking Usage Survey

This type of parking survey involves interviews with the drivers who used the parking facilities. As a result, it is possible to collect information on extending to which the existing facilities are being used. The journey purposes of car parks. The parking demand at different prices etc

Location of survey:
Name:
Use of Vehicle:
Address:
Mob. No:

૧. ખાસી મહાલી લેવલ પાર્કિંગ ની સુવિધા, માસિક/વર્ષિક કલેક્ટ કરવા માટે કોઈપણ સુવિધા પૂરી પાડવાનું આયોજન કરી રહ્યા છો, તમારો શું અભિપ્રાય છે?

૨. તમે આમાં અવરોધન વિશે શું વિચારો છો? શું તે સમસ્યા ઠાવે છે?

૩. તમે આ વિસ્તારમાં પાર્કિંગ માટે કોઈ નોંધણી કરી છે કે? (સીટ કોલ, સપ્લાય, કોઈપણ)

૪. તમારો કોઈ વિભાગ અથવા કોઈપણ સેક્ટર માટે પાર્કિંગ માટે કોઈ નોંધણી કરી છે કે? અને કોઈ નોંધણી કરી છે કે? અને કોઈપણ સમસ્યા માટે ખાસી છે?

૫. તમે 'પેમેન્ટ પાર્ક' ઉપયોગ કરો છો? સહી સુવિધા માટે 'પેમેન્ટ પાર્ક' માટે નોંધણી કરો છો?

૬. તમારો શું અભિપ્રાય છે?

Rate	monthly(paid)	
	2W	4W
6 hour	5	50
12 hour	10	75
24 hour	15	85

Location of survey:
Name:
City of Vehicle:
Address:
Mob. No:

1. We are planning to provide a multi-level parking facility, a center for man organization, a facility on the last floor. What is your opinion?
2. What do you think of such a plan? Does it seem possible?
3. If you pass through this area, what's the problem with you? (Rickshaw stands, pedestrians, hawks)
4. How often do you have to come here in a day? And if you come, what purpose do you come from? And how long do you come to?
5. Do you use "pay and park"? Do you use if you get "Pay and Park" equipped with good facilities?
6. What is your suggestion?



Fig 1.2 traffic congestion on a road

VIII. CONCLUSION

In between morning to noon peak hour, maximum vehicle had visited at Padmavati shopping Centre and there is the big problem to park their vehicle.

- ✓ CBD area has a shortage of parking space.
- ✓ As we see many problems of parking occurring in our region. It may cause accidents.
- To prevent these and reduce the problems of parking, suggestion of multi-storied parking system is taken into account for Vadodara region at Padmavati shopping Centre near Sursagar.
- It includes the provision of multistoried parking system for a commercial building.

- We are planning to provide recreational centre, game zone and hotel into commercial building.
- To reduce the parking of vehicles we can implement the following:
 - ✓ For short-term measures pay and park method can be used at peak hours to control and regulate the parking.
 - ✓ For long-term measures off street parking have to be provided near CBD areas, within the radius of 200 m.

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