

Planning and Design of Parking Facilities - For Kavali Town

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ABSTRACT:

This study investigates problems with current parking practices with the parking accumulation and supply survey in kavali. Specific parking management strategies (short term, medium term and long term) and the way they can be implemented are discussed. The costs of proposed parking facilities, savings and improvements that can result from improved management is calculated. To solve the parking problems immediately short-term solution are recommended with congestion pricing as, operation and maintenance cost is very much less for on-street parking management rather than off-street and even internal rate of return is high in on street parking management. Parking management refers to various policies and programs that result in more efficient use of parking resources.

This report summarizes the book, Parking Management Best Practices. It investigates problems with current parking planning, discusses the costs of parking facilities and potential savings from improved management, describes specific parking management strategies and how they can be implemented, discusses planning and evaluation issues, and describes how to develop optimal parking management in a particular situation. Cost-effective parking management programs can usually reduce parking requirements by 20-40% compared with conventional planning requirements, providing many economic, social and environmental benefits

KEYWORDS:








Parking classification, design layout, parking survey.

INTRODUCTION:

Parking is an essential component of the transportation system. Vehicles must park at every destination.

A typical automobile is parked 23 hours each day, and uses several parking spaces each week. Parking convenience affects the ease of reaching destinations and therefore affects overall accessibility. During the past few years a number of key transport trends have emerged in the kavali Town. which have direct and indirect influence on the development of the Draft Parking Policy. These trends include the following:

Growth in ownership and use of private vehicles and motorcycles.

-  Increase in peak period traffic congestion and all day traffic volumes.
-  Increase in road based freight movement and delivery activities.
-  Deterioration of Metrorail and bus services.
-  Gradual roll-out of improved public transport.
-  Change in nature and activity of commercial nodes and centres (such as Kavali at Indian bank, near RTC bus stand, TTD function hall).
-  Decent realisation in the form of regional shopping centres.
-  Urban growth and sprawl.

CLASSIFICATION OF PARKING:

These are of two types parking

1. On-Street Parking
2. Off-Street Parking

2.1 ON-STREET PARKING

In the City there are managed parking bays (priced parking with time limits), parking bays with time limits only and unmanaged parking bays. Issues being experienced include

- ✚ limits are ignored on a Time large scale in the City due to limited enforcement capacity Traffic Services.
- ✚ High level of non-payment in managed parking areas due to the limited enforcement capacity by Traffic Services.
- ✚ Negative perception created by the informal parking attendants in the public street



Fig no 2.1: On Street Parking

2.2 OFF-STREET PARKING

While public on-street parking exists as managed parking (priced parking with time limits) and unmanaged parking, off-street parking is generally privately owned and reserved for private use, except for City owned managed parking areas. Issues being experienced Include:

- ✚ No disincentives exist for parking provision in excess of the minimum requirements.
- ✚ Off-street parking is generally reserved for use by a single user and

therefore not available for casual parking users. This result in an inefficient use of space.

The conversion of current parking are age space to other uses is hampered by structural and design aspects such as floor to roof height.



Fig no 2.2: Off Street Parking

2.3 CALCULATION OF PARKING REQUIREMENTS

For trip destinations, parking requirement is calculated on Gross Floor Area (GFA), or the number of visits (where the final employee/visitor number can be estimated). As a rule, business and commercial use vehicle parking requirements are calculated by GFA, whilst leisure uses are based on the estimated number of vehicle visits. For trip origins, the size of the dwelling is taken into account (by way of the number of bedroom) and spaces are allocated on a per dwelling basis. Where GFA is used to determine parking standards and the calculation results in a fraction of a space, the number should be rounded up to the nearest whole number. For example, the standard may be 1 car parking space for every 4 sqm of GFA, and a development has a GFA of 17 sqm, a calculation of 17 divided by 4 gives 4.25 spaces, rounded up to the nearest whole number gives a total requirement of 5 spaces. For the avoidance of doubt, where developments are smaller than the relevant threshold in the use class table, the rounding up principal will still apply. For example, a shop (A1) of 200sqm will require 1 cycle space for staff and 1 cycle space for customers, despite being less than 400sqm in GFA. Where a development incorporates two or more land uses to which different parking standards are applicable, the standards appropriate for each use should be applied in proportion to the extent of the respective use. For example, where a development

Lot description	Lot no:	Vehicle type	Supply
Indian bank	1	2 wheeler	42
		4 wheeler	13
Near RTC bus stand	2	2 wheeler	50
		4 wheeler	16
At function hall	3	2 wheeler	50
		4 wheeler	4

Table: Parking Supply Description

2.6.2 PARKING ACCUMULATION SURVEY

The parking accumulation data collected from parking accumulation and duration surveys carried out for on-street and off-street parking areas within the influence area were compiled and analyzed to work out the accumulation and duration of parking.

2.6.3 PARKING DURATION ANALYSIS:

Parking duration analysis was carried out to find the length of time spent in a parking space by the vehicle. So as to reduce parking turn-over heavy parking fee is to be levied on the short duration parking vehicles.

2.6.4 PARKING TURN OVER ANALYSIS:

Parking turnover at the parking lots was used in the calculation of revenue generation from the proposed schemes. Table 2 represents the parking turn-over rate of the vehicles.

1	2 wheeler	42	102	2.04
	4 wheeler	13	25	
2	2 wheeler	50	96	2.3
	4 wheeler	16	45	
3	2 wheeler	50	126	7.9
	4 wheeler	4	48	

2.7 PARKING MANAGEMENT PROPOSALS AND DISCUSSION

The options considered are, provision of multilevel parking facilities and identification of locations for surface parking.

2.7.1 IDENTIFICATION OF SURFACE PARKING AREAS

Surface parking facilities were proposed as an option for the 3 sites in kavali. Table 4 represents the identified surface parking areas with the parking fee assigned

Lot no.	Vehicle type	Supply	No.of diff. vehicles per 10hrs	Parking turn over rate

Parameter	Kavali	Kavali	Kavali
Location	Indian bank	Near RTC bus stand	Function hall
Area	250m ²	300m ²	210m ²
Vehicles wheelers	42	50	50
4 wheelere	13	16	4

Table : Identified Surface Area.

Design consideration adopted for off and on street parking for the town has been tabulated in Table5

Parameter	Value
Width of CBT entry	7.5m
Space for two wheeler	1.5m*2.5m
Space for four wheeler	3m*5m

Table 13.2: Design Consideration

SUMMARY

Lot no:	Parking area	Need for on-street	Need for off-street
1.	Indian bank	low	high
2.	Near RTC Bustand	high	low
3.	Function hall	High	low

CONCLUSIONS

With the increase in personalized motor vehicles, one of the major problems confronted by the motorists is the acute shortage of parking space. The demand for parking has increased in alarming proportion in Central Business District (CBD) areas and other work/activity centers of the cities. The provision of parking and their effective use emerges as the most viable initiative in the cities. On the basis of the present study conducted in kavali the following conclusions have been drawn:

- ✦ Based on the analysis of the accumulation pattern it was found that the maximum accumulation in the morning occurs between 12 noon to 2 PM and between 5 PM to 8 PM in the evening.
- ✦ The study of parking duration analysis suggests that short duration parking is high. Hence, parking turn-over is high causing congestion on the streets. To reduce this, heavy parking fee is to be levied on the short duration parking vehicles.
- ✦ Prohibition of parking in peak hours is to be varied based on the variation in the peak accumulation in their respective parking lots.
- ✦ To solve the parking problems immediately short-term solution can be adopted with congestion pricing as, operation and maintenance cost is very much less for on-street parking management rather than off-street and even IRR is high in on-street parking. But, based on the future parking demand in the study areas long term management plan (provision of multi-level parking) is preferred.
- ✦ The high demand for parking spaces in the horizon years could be effectively met by the development of automated parking system.

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