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# ANALYSIS OF THE CHARACTERISTICS AND PARKING NEEDS OF RATU ZALECHA GENERAL HOSPITAL, BANJAR DISTRICT

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**ABSTRACT**

*Population growth in Indonesia is increasing so that the need for health care is also increasing. With this increase in growth, health facilities must also be improved, as is the case with the City of Martapura which already has various health facilities. One of them is Ratu Zalecha Regional General Hospital. With the increasing need for health, parking facilities must be improved as well. The solution to minimize this problem is to do a parking analysis in that area. Things that need to be analysis are parking characteristics, parking needs, parking forecasting. This study aims to determine the characteristics of parking, needs and forecasting of parking at Ratu Zalecha Regional General Hospital. The method used in this study was to conduct a survey in the field for 2 days, namely on Tuesday and Saturday, to get the number of parked vehicles and to record the license plates of vehicles entering and leaving. From the results of the study it was possible to produce the highest volume of motorcycles of 424 vehicles and cars of 152 vehicles, the highest accumulation of motorcycles was 134 and cars of 48 vehicles. The highest motorbike parking duration was 4,794 hours/vehicle and the highest car parking time was 4,939 hours/vehicle.*

**Keywords**: Car, Parking Characteristics, Parking Needs, Motorcycle, Ratu Zalecha Regional General Hospital

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## 1. INTRODUCTION

Population growth in Indonesia is increasing every year so that the need for health care is also increasing. Humans will try to do everything possible to get excellent health. With this increased growth, health facilities in the city must also be made available and improved, just as the City of Martapura already has various health facilities. And the health needs in Martapura City are growing rapidly.

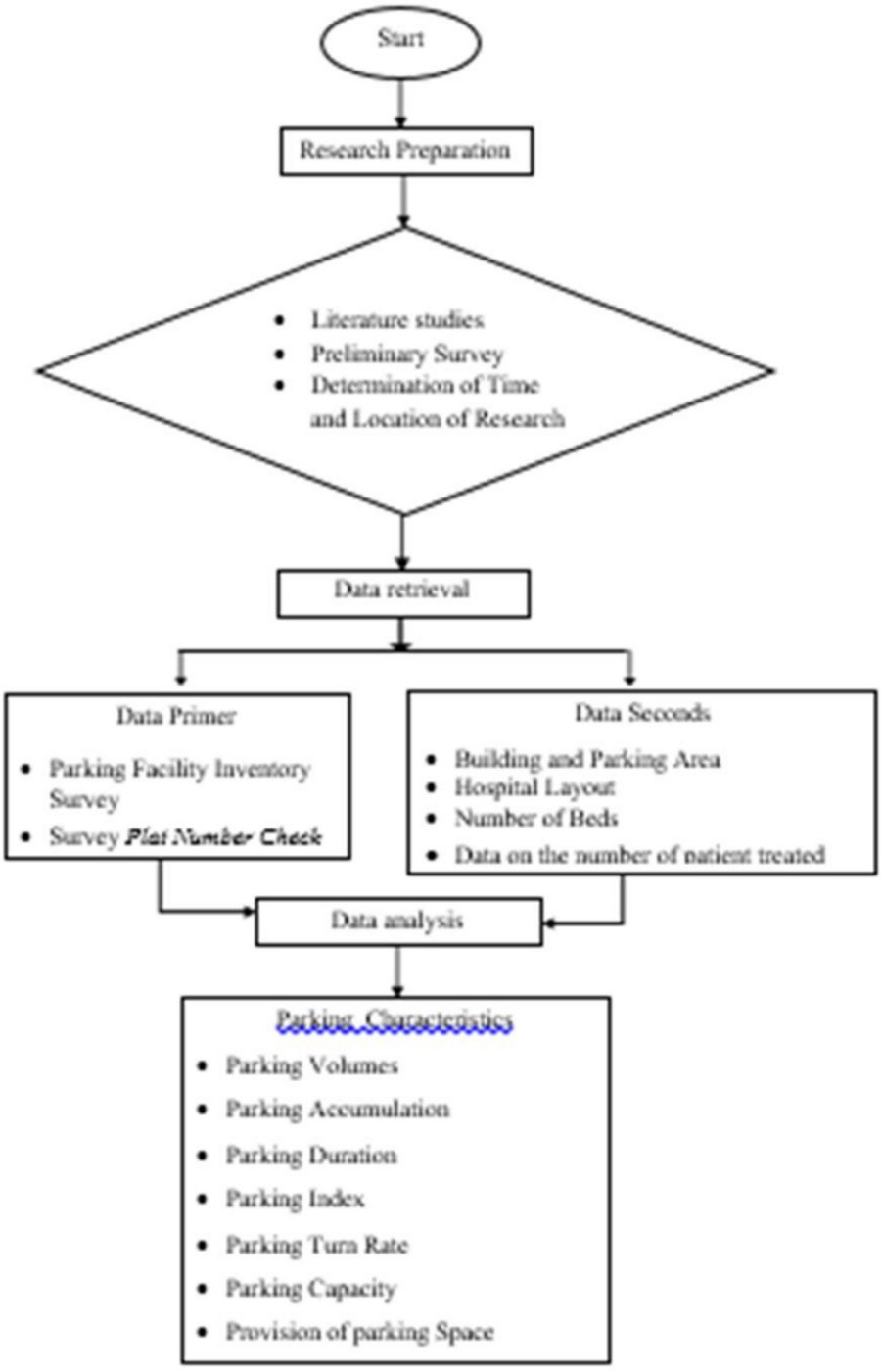
In line with the increasing need for health, the demand for health services is also getting bigger, therefore in an effort to improve public health services it is necessary to support various facilities, one of which is vehicle parking facilities at hospitals.

Martapura City is an area which is the capital of Banjar Regency in South Kalimantan Province with relatively dense human activity. The astronomical location of Martapura is between 3°42923 South Latitude and 114°87679 East Longitude. The area of Martapura City is 42.03 $km2^2$ with a population of 121,153 people (BPS, 2020). From the total population and area of the area, the population density in Martapura reaches 2,883 people per km2 with a population growth rate of 1.73% between 2010-2020.

Hospital is a place to serve health needs that provide individual health services by providing outpatient, inpatient and emergency unit services. These people will use vehicles to go to the hospital, so parking facilities are needed to park their vehicles. Parking is an integral aspect of transportation needs which continue to grow over time. Procurement of parking space will take up a large part of the hospital because it requires separate space.

## 2. METHOD

This research begins with a preliminary study, literature study, determining the location of the study, then proceed with the collection of primary and secondary data. After that, the data is analyzed as shown in the flowchart below.


Start
Research Preparation
Literature studies
Preliminary Survey
Determination of Time and Location of Research
Data retrieval
Data Primer
Parking Facility Inventory Survey
Survey Plat Number Check
Data Seconds
Building and Parking Area
Hospital Layout
Number of Beds
Data on the number of patient treated
Data analysis
Parking Characteristics
Parking Volumes
Parking Accumulation
Parking Duration
Parking Index
Parking Turn Rate
Parking Capacity
Provision of parking Space

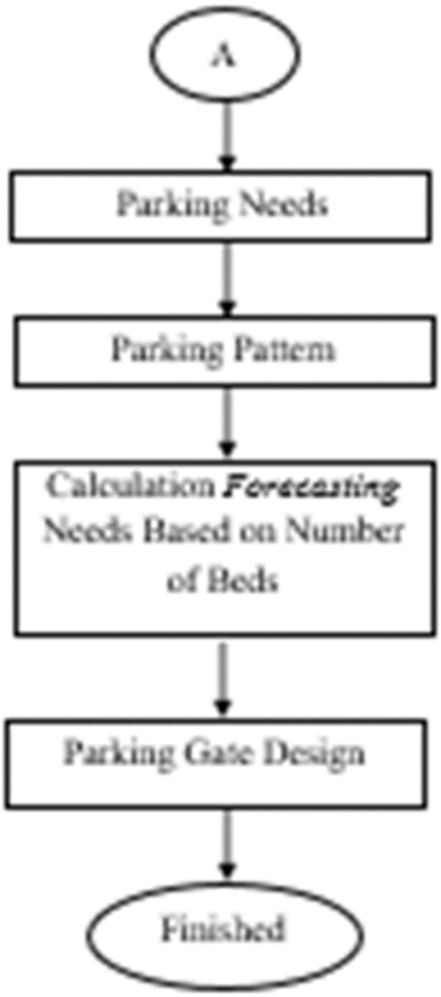



**Figure 1.** Research Flowchart

## 3. RESULTS AND DISCUSSION

From a research survey that was conducted for 2 days, namely on September 20 2022 and September 24 2022 in the motorcycle and car parking area of Ratu Zalecha Regional General Hospital. After that the data were analyzed according to the formulation of the problem in the study. The results obtained are as below

**Table 1**. Results of Parking Characteristics Analysis

| No. | Information | Vehicle | | | | Unit |
|---|---|---|---|---|---|---|
| | | Motorcycle | | Car | | |
| | | Tuesday | Saturday | Tuesday | Saturday | |
| | **Parking Characteristics** | | | | | |
| | Visitor Parking Volume | 424 | 372 | 122 | 125 | Vehicle |
| | Employee Parking Volume | 75 | 66 | 25 | 19 | |
| | Accumulation of Visitor Parking | 134 | 117 | 48 | 39 | Vehicle |
| | Employee Parking Accumulation | 51 | 46 | 17 | 13 | |
| | Duration of Visitor Parking | 4,794 | 4,206 | 4Kent | 4,061 | Hour/Vehicle |
| | Employee Parking Duration | 4,787 | 4,213 | 5,114 | 3,886 | |
| | Visitor Parking Index | 55,37 | 48,35 | 62,34 | 50,65 | % |
| | Employee Parking Index | 41,13 | 37,10 | 70,83 | 54,17 | |
| | Visitor TPP/PTO | 0,143 | 0,124 | 0,291 | 0,180 | Vehicle/SRP/ Hour |
| | Employee TPP/PTO | 0,067 | 0,059 | 0,116 | 0,088 | |
| | Visitor Parking Capacity | 50 | 58 | 16 | 19 | Vehicle/Hour |
| | Employee Parking Capacity | 26 | 29 | 5 | 6 | |

| No. | Information | Vehicle | | | | Unit |
|---|---|---|---|---|---|---|
| | | Motorcycle | | Car | | |
| | | Tuesday | Saturday | Tuesday | Saturday | |
| | Visitor Supply Parking | 409 | 466 | 126 | 154 | Vehicle |
| | Parking Supply Employees | 210 | 238 | 38 | 50 | |
| | Parking Gate Presupposition | 1,5 | | 1,1 | | Second |

**Table 2.** Results of Parking Needs Analysis

| | Parking Needs | | | | | |
|---|---|---|---|---|---|---|
| | Visitor Parking Needs | 527 | 522 | 249 | 249 | SRP |
| | Employee Parking Needs | 127 | 127 | 40 | 40 | |

***Forecasting* Parking Space Needs Based on Number of Beds**

So from the calculation results it is concluded that the parking space cannot accommodate vehicles anymore because the total number of vehicles is 324 SRP/hour greater than the total capacity of the inpatient room of 121 SRP/hour.

**Table 3.** Results of Parking Space Unit Analysis

| No. | Parking Location | Parking Pattern | | | | | Unit |
|---|---|---|---|---|---|---|---|
| | | 0° | 30° | 45° | 60° | 90° | |
| 1 | Visitor Motorcycles | | | | | | |
| | Parking Location A | 7 | 11 | 16 | 19 | 23 | SRP |
| | Parking Location B | 8 | 13 | 18 | 22 | 27 | |
| 2 | Employee Motorcycles | | | | | | |
| | Parking Location A | 8 | 12 | 17 | 20 | 24 | SRP |
| | Parking Location B | 8 | 12 | 17 | 20 | 24 | |
| 3 | Visitor Car | | | | | | |
| | Parking Location A | 5 | 6 | 8 | 10 | 12 | SRP |
| | Parking Location B | 9 | 10 | 14 | 17 | 21 | |
| | Parking Location C | 4 | 5 | 7 | 8 | 10 | |
| | Parking Location D | 3 | 3 | 4 | 5 | 6 | |

| No. | Parking Location | Parking Pattern | | | | | Unit |
|---|---|---|---|---|---|---|---|
| | | 0° | 30° | 45° | 60° | 90° | |
| | Parking Location E | 3 | 3 | 4 | 5 | 6 | |
| | Parking Location F | 3 | 3 | 5 | 6 | 7 | |
| | Parking Location G | 3 | 3 | 5 | 6 | 7 | |
| | Parking Location H | 9 | 10 | 15 | 18 | 21 | |
| 4 | Employee Car | | | | | | |
| | Parking Location A | 3 | 3 | 4 | 5 | 6 | SRP |
| | Parking Location B | 5 | 6 | 8 | 10 | 12 | |
| | Parking Location C | 2 | 2 | 2 | 3 | 4 | |
| | Parking Location D | 2 | 2 | 3 | 4 | 5 | |

## 4. CONCLUSION

From the analysis it can be concluded that several aspects regarding parking matters are as follows:

1. Parking Characteristics
   It was concluded that for calculating parking characteristics, several calculations were produced to find out how the parking area was assessed.
2. Parking Needs
   It was concluded that the need for parking space is able to accommodate the number of parked vehicles.
3. Forecasting
   It was concluded that the future parking space could no longer accommodate vehicles.
4. Parking Space Unit
   It was concluded that the entrance is able to serve the flow of vehicles that will park.

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