ANALYSIS OF THE EXISTING CONDITION ON PARKING BUILDING AT SULTAN HASANUDDIN INTERNATIONAL AIRPORT

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ABSTRACT

The existing parking area at Sultan Hasanuddin Airport Makassar has 675 four-wheel parking areas, which cannot accommodate about 10 million passengers in 2013 and every year there is an increase. This study aims to analyze the characteristics of parking, especially the handling of four-wheeled vehicles in the parking building from entry, dropout, pickup, maneuver, clearance, vehicle rotation and parking slots to exiting the building. Analyze the parking area related to the level of safety and ease of use of parking buildings, especially on the semi-basement floor at Sultan Hasanuddin Airport. The method used for this research is a qualitative method, namely research that is descriptive and tends to use analysis from the data that has been collected and direct observation on the existing parking building at Sultan Hasanuddin Airport Makassar. The data collection process was carried out in two stages, namely the preliminary survey and the main survey. The results of research and observations of the existing parking building at Sultan Hasanuddin Airport, especially on the basement floor, show that the construction of a parking building that was built in terms of size, height clearance, slope, parking space layout, facilities are in accordance with the minimum standard of parking buildings, but there are some works such as sidewalks. and a stopper whose placement reduces the parking area and vehicle circulation.

Keywords: existing; parking building; airport; Sultan Hasanuddin.

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INTRODUCTION

The airport is one of the economic drivers of a region in the field of air infrastructure. The airport has developed into a center for business activities, in which there are various supporting facilities needed by airport service users. Starting in the 1990s, the airport business model has been transformed by applying the concept of "airport city", which provides a variety of services that are not only limited to flights but also provide non-aeronautical services (Israni, Tutik and Paramita, 2017). The development of South Sulawesi Province in the field of economic activity continues to increase, seeing the need for transportation also increasing. Having a good transportation system will be a supporting factor for economic activities to continue to grow (Sri and Tri, 2015). Makassar Sultan Hasanuddin International Airport is the gateway to eastern Indonesia, in recent years the number of aircraft movements has continued to increase (Aghil, 2019). Sultan Hasanuddin International Airport, Makassar in the South of Sulawesi Province is the airport gateway and as a transit point for the flow of air transport passengers from western Indonesia to eastern Indonesia and vice versa. The growth in the number of passengers and flights through this airport has increased rapidly from year to year, especially after the opening of the open sky policy and low ticket competition among several airlines. The increase in the number of passenger and aircraft movements affects the accessibility of vehicles or ground transportation modes from and to the airport, the flow of passengers and visitors at the terminal, as well as the movement of aircraft on the runway, taxiway, and apron. This also affects the performance of airport roadside access at Sultan Hasanuddin International Airport as a meeting point between the terminal building and the land transportation system for drop-off and pick-up of passengers at the terminal building (Sakti, 2009).

Aviation services have become a necessity, not only for high-income residents, but also for middle- and low-income people. Air traffic activities require the availability of airport facilities. Improving

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the quality and satisfaction of consumers or customers. things that must be considered. Consumer satisfaction is the level of consumer feelings after comparing what he received and his expectations. A customer, satisfied with the value provided by the product or service, is very likely to be a customer for a long time. Likewise, everyone who wants to come to the airport. Whether that person is a passenger (passanger), picker, employee, or anyone with an interest in going to the airport, they really hope to be able to quickly get to their destination and get excellent service, especially parking services.

Parking at the airport is currently a serious problem. The high number of parking users at the airport for both two-wheeled and four-wheeled vehicles while the land available for use as a parking area cannot accommodate all the vehicles that will use the parking area. Parking control is becoming increasingly difficult to do because there are no alternative modes of choice to and from the airport area, while the land used for parking area development is very limited. In addition, currently I Gusti Ngurah Rai International Airport-Bali has not been supported by a good public transportation system so that the use of private vehicles to and from the airport is still relatively high. The use of public transportation facilities is very limited (Bus Trans Sarbagita) and has not been maximally able to attract airport service users to switch to using transportation modes during that period. This condition exacerbates congestion that occurs during rush hour at I Gusti Ngurah Rai International Airport. Another negative impact is that the area is not well organized and causes vehicle chaos during peak hours (Ayu et al., 2017). Aviation is a unified system consisting of the use of airspace, aircraft, airports, air transportation, flight navigation, safety and security, the environment, as well as supporting facilities, and other public facilities that require transit to store or put vehicles in place. parking. Vehicles going in and out at the airport are very crowded due to limited parking where there is an increase in the frequency of scheduled and unscheduled flights so that people who are interested and operating at Halim Perdanakusuma airport need a stopover and leave their vehicles in the parking lot (Sri and Tri, 2015). The purpose of this study was to analyze the existing condition of the newly built parking building at Sultan Hasanuddin Airport Makassar.

Understanding Parking Facilities

Parking is the immobile state of a vehicle that is temporary because it is abandoned by the driver. It is legally prohibited to park. Every motorist has a tendency to find a place to park his vehicle as close as possible to the place of activity or activity (Fauziah, 2017). The definition of parking as stated in Law no. 22 of 2009 concerning Road Traffic and Transportation, as stated in Article 1 number 15, is "the immobile state of a vehicle that is temporary in nature because it is abandoned by the driver". Meanwhile, parking facilities are regulated in more detail in Article 43 paragraph (1) which states: the provision of parking facilities for the public can only be carried out outside the Road Owned Space in accordance with the permit granted. In the elucidation of Article 43 (1) the definition of "Public Parking" is a place to park a vehicle for a fee. Meanwhile in the Big Indonesian Dictionary, parking is defined as “stopping or placing (motor vehicles) for a while in the space provided. Included in the definition of parking is any vehicle that stops "STOP" at certain places, whether stated by traffic signs or not, and not solely for the purpose of raising and/or lowering people and/or goods (Sri and Tri, 2015).

Parking facility is a public service facility, which is a very important factor in the transportation system in urban areas which incidentally is a place for public activities such as airports. Viewed from the technical side of traffic, the current parking activity greatly disrupts the smooth flow of traffic, considering that most parking activities are carried out on the road, resulting in a decrease in road capacity and obstruction of traffic flow and road use becomes ineffective. Parking facilities are urban traffic management, the layout of vehicle parking at an airport can be varied, depending on the availability of the shape and size of the place as well as the number and location of entrances and exits. Parking facilities are broadly divided into 2 (two) types, namely: on-street parking facilities and off-street parking facilities. On-street parking is a parking facility that uses the roadside as a parking space, while off-street parking is a vehicle parking facility outside the edge of a public road, which is specially made to support activities, in the form of a courtyard. parking and/or parking buildings (Sri and Tri, 2015).

The concept of parking is a parking area that is available to meet the needs of the number of vehicles that will park. Parking if managed properly will bring maximum profit (Mis'al A, Murtejo T, 2019; Anggraini D, Syaiful S, 2013). Currently parking management has undergone a fundamental change, that parking is managed professionally so that parking with a full concept somewhere is rarely found. The parking building adapts to the needs of the vehicles that will occupy it (Hermawan E, 2018; Azhar H, Akbardin J, 2014; Khatimi H,et.al, 2021). So that good parking will affect the parking capacity at each location that will be planned. A good parking plan must accommodate the need for a parking space (Pakki I, et.al, 2021; Syaiful S, Elvira Y, 2017; Syaiful S, Yuliantino M, 2017). The condition of the parking lot, the location of the parking lot, the purpose of why people will park in that place. It should be studied better to get good and useful planning results (Syaiful S, et.al, 2018; Syaiful S,et.al, 2018; Syaiful S, 2013).

RESEARCH METHODS

The research method is structured in such a way that the discussion of this research can be directed. So that from the stage of starting to analyze data related to this research, it can be arranged systematically. Initial Stage The initial stage where we will see and plan a problem that occurs in the field so that we will get a conclusion and solve the problem. Literature Study Stage The stage where the researcher uses sources from various literatures and previous studies, which will be used as references. Data Collection At this stage, the method used in data collection is the primary data in this study obtained through interviews and direct observation of the existing conditions in the field. And secondary data Secondary data is data obtained without a survey or direct observation in the field where the research was conducted. Primary data obtained through investigation of the scene, investigations carried out through observation are the status / condition of the location of the parking building area and the current parking configuration. While the secondary data used are situation diagrams, floor plans / views of the building, building area, capacity and available facilities and the size of the existing car parking lot. The analysis is done by analyzing the current parking area with the largest hypothesis, then predicting and analyzing incoming vehicles, pick-ups, and parked vehicles. Assume that the vehicle has a turn, maneuver, clearance, high parking area, and easy and safe parking for users.

RESULTS AND DISCUSSION

Activities at airports require supporting facilities as airport services, including terminal buildings, fire stations, fixed based operators, hangers, general aviation areas, and of course car parks which are usually the largest land users. Parking facilities and terminals are an important part of the entire transportation system including on-street and off-street. Planning and design of these facilities demands an understanding of vehicle characteristics, driver behavior, parking operations, parking plant characteristics of the different land uses served (Caroline and L.B, 2016). Based on the results of the research that the parking building (north side) has an area of 29,253 m2 with a total vehicle capacity of 611 four-wheeled vehicles, consisting of four floors that function as parking lots and the top floor. In addition to VIP and women-only parking access, disabled parking access is also available. It has a semi-open building concept so that the flow of air and light is maximal enough to enter the parking building. In addition to its main function as a parking lot, this building also has several other supporting facilities such as prayer rooms, toilets, canteens, seats for drivers, elevators, emergency stairs and others. So that the existing condition of the existing parking building at Sultan Hasanuddin Airport (Figure 1) especially on the basement floor shows that the construction of a parking building that was built in terms of size, height clearance, slope, parking space layout, facilities are in accordance with the minimum standard of parking buildings, however there are some work such as sidewalks and stoppers whose placement reduces the parking area and vehicle circulation.

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Parking Lot Stopper

Parking Area

Figure 1. Existing Condition of Sultan Hasanuddin Airport Parking Building

Parking Availability Analysis

With a vehicle capacity of 611 four-wheeled vehicles, the existing parking building (north side) does not meet the estimated target for vehicles that will park this year. If the south side parking building is completed next year (2022), it is assumed that it can fill the parking space until 2044 with the assumption that the number of passengers is 30 million/year. With the current condition of the existing parking building, it is likely that there will be congestion, especially during the holiday season and during peak passenger hours. One solution is to prepare an open parking lot on the south side. In 2020, passenger traffic at 15 AP I airports amounted to 31,847,842 passengers, a 61% decrease compared to passengers in 2019 which reached 81,948,866 passengers. The following is the estimated parking space at Sultan Hasanuddin Airport:

1. The number of passengers per year in 2019 is 15,661,000 million x 0.00007 = 1,099 x 31 m2 = 34,069 m2
2. The number of passengers per year in 2024 is 21,024,000 million x 0.00007 = 1470 x 31 m2 = 45,570 m2
3. Passengers per year in 2034 is 30,836,000 million x 0.00007 = 2,158 x 31 m2 = 66,898 m2
4. Passengers per year in 2044 is 40,159,000 million x 0.00007 = 2,800 x 31 m2 = 86,800 m2

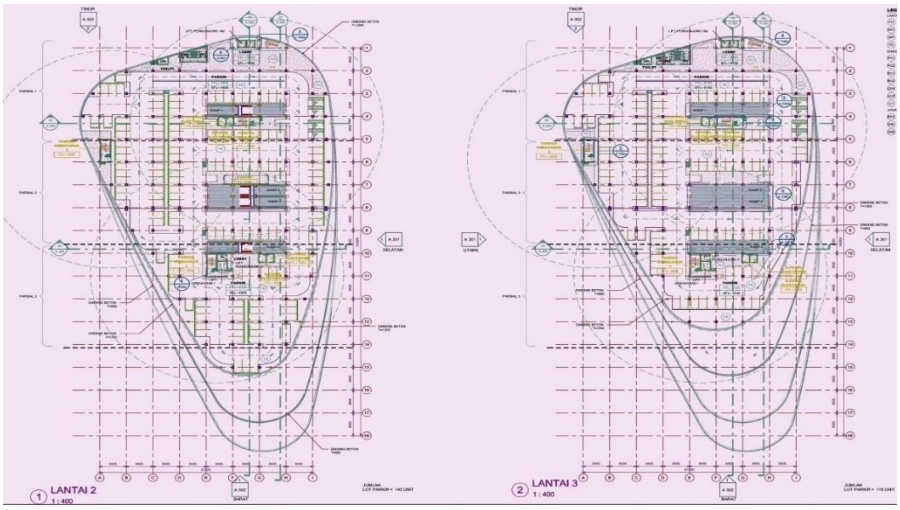

Figure 2. 2nd and 3rd Floor Parking Plans

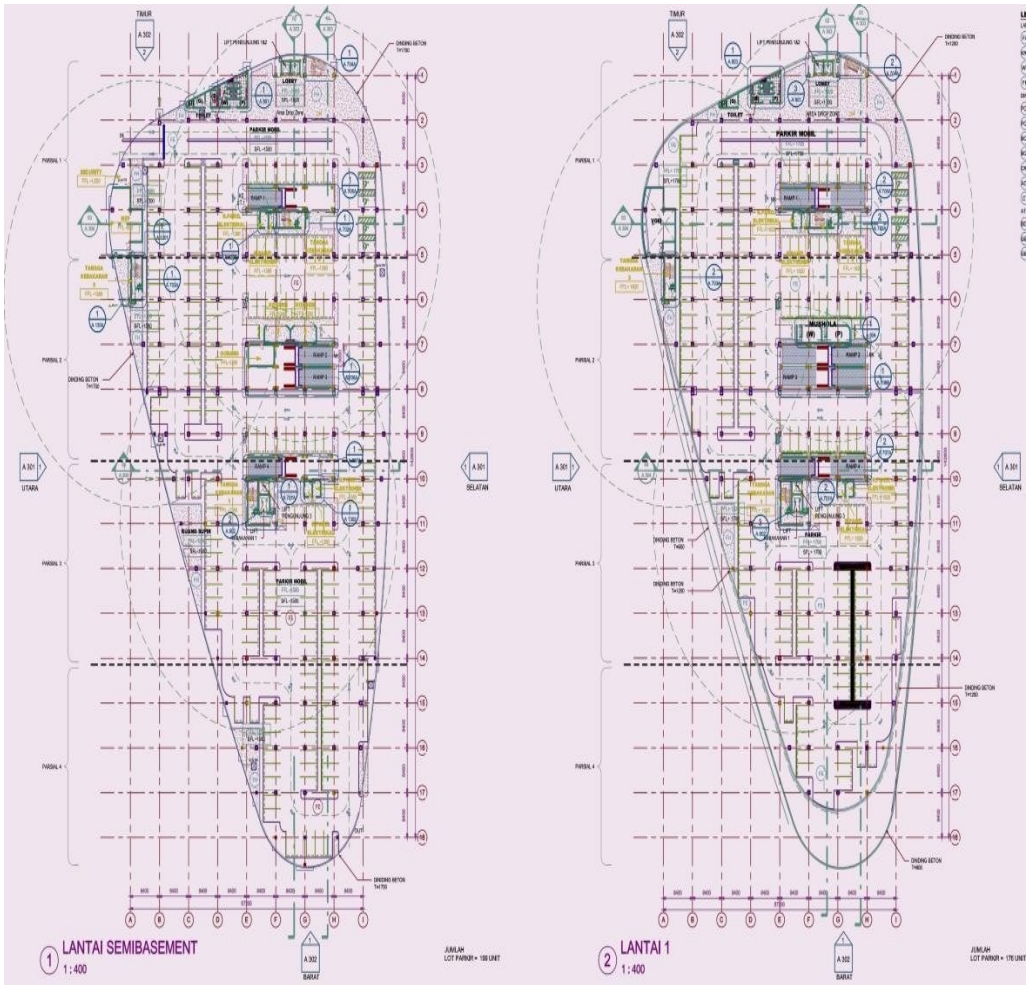

Figure 3. Basement and 1st Floor Parking Plans

Analysis of Application of Circulation Flow

The ease of accessing the parking area and the visitor lobby will determine the effectiveness of the circulation path in the parking building. So that the density of vehicles does not pile up, causing congestion. The access road to the existing parking building is quite easy to see and reach so as not to cause confusion for users. The first stop that was found was the dropzone, here it is quite prone to overcrowding if the user's vehicles arrive at the same time. This is where the passengers drop off and pick up so that the dropzone area becomes a place to wait or gather passengers. In this area also facilities there are lifts and stairs for visitors as well as toilets. With a dropzone area of around 7.8 m wide, only 2 lanes of vehicles and a length of about 24 m can only accommodate 3 vehicles in the rear. So a maximum of 3 vehicles can stop at the dropzone area so that this area avoids overcrowding. To avoid the density of vehicles in this area, it is recommended to prepare a guard and the waiting time for vehicles should be short, especially during busy vehicle hours. The circulation space at the first right turn is quite spacious, there are 4 parking places for disability and 3 parking spaces for women only.

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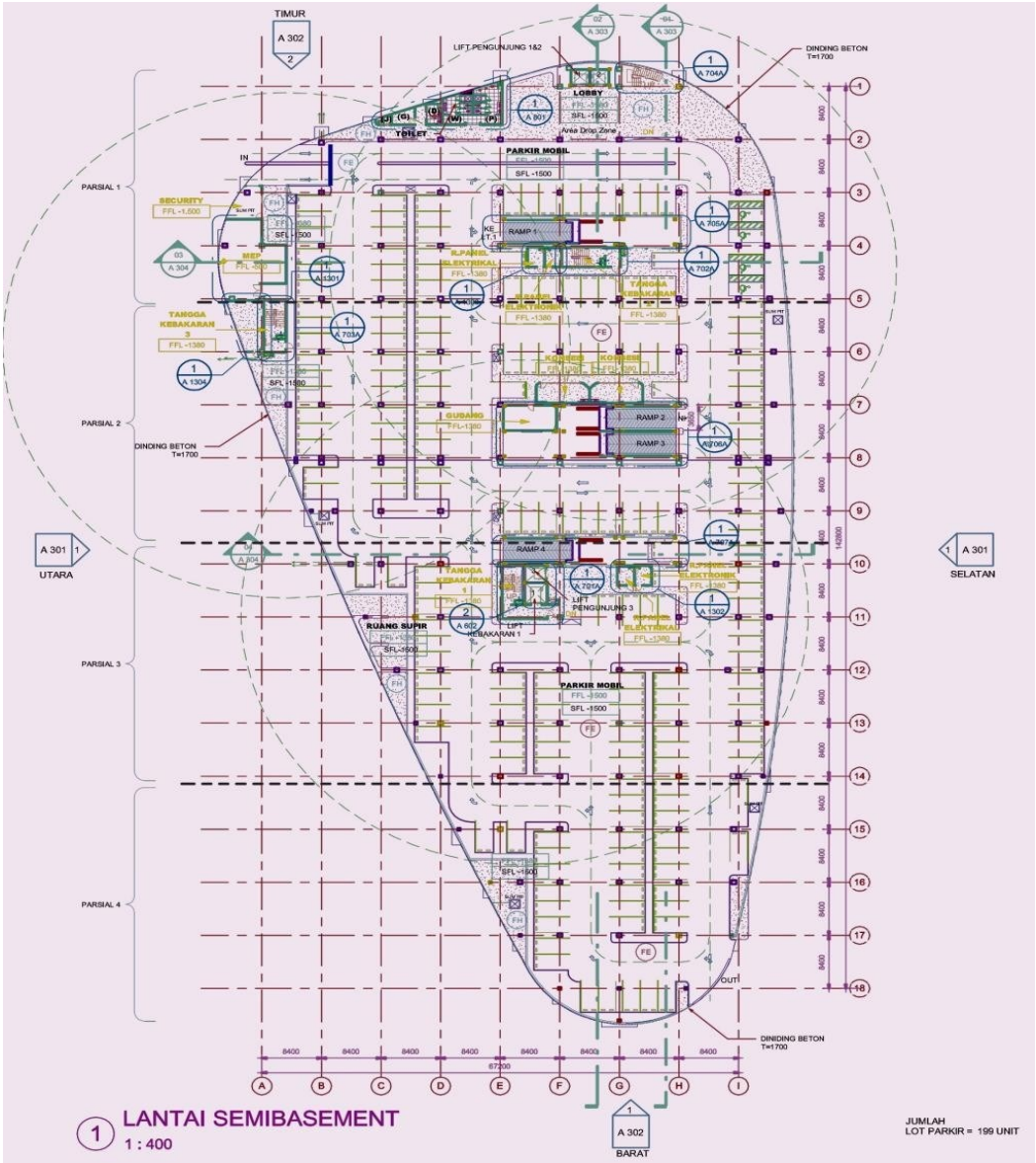

Figure 4. Basement floor circulation plan

Analysis of Parking Space Application

Parking in the discussion here is parking inside the existing building. Parking for four-wheeled vehicles specifically for VIP, disabled, women and public parking. The activity of parking a vehicle is a common/very common activity for its users. Some of the things that often become obstacles to parking vehicles, especially inside buildings, are, among others, the size of the parking space/vehicle movement space, visibility, obstacles to the left and right of the parking lot, parking signs and road markings. The effect of parking or parking on circulation in the existing building is the effectiveness of the waiting time against the obstacles that occur. The VIP Parking Area is directly opposite the dropzone area which is a place for passengers to get on and off so that if there is a VIP vehicle that will park/park the vehicle, it will certainly cause obstacles to vehicle movement in the dropzone area and generally vehicles in the VIP area are vehicles that are quite large.

The parking space for disabled vehicles is wide enough, adjusted to the standards of disabled passengers who need a large enough space to get on/off the vehicle and in this area, disabled

passengers should get off/board a vehicle, located quite close to the lobby/lift. The next row of parking spaces is a female-only parking lot which is specially prepared for female drivers whose parking spaces are according to vehicle standards. The parking area is quite easy to access, the path is quite busy going to the exit.

Next is the vehicle parking lot which generally has an area according to the standard, the location is spread out and the arrangement pattern is 90o. Obstacles that may occur are in the area of turning/bend and visibility

From the results of the study, it is recommended that it is better if the sidewalk placement is not in the area of turns, bends and parking lots. Likewise, the placement of the stopper in the parking area should not reduce the path so that it can interfere with vehicle circulation. In more detail, the results of the analysis of parking characteristics show that the existing condition of the airport parking area is that almost all parking accumulation values, on weekdays and weekends, are higher than the parking capacity or the number of available parking kiosks. This condition means that the number of car parks is more than the number of parking kiosks available and further analysis of other parking characteristics, namely parking index, parking duration, and parking turnover is needed to determine whether the existing parking facilities need to be expanded or not.

CONCLUSION

The existing parking building at Sultan Hasanuddin Airport, especially on the basement floor, shows that the construction of a parking building that was built in terms of size, clearence height, ram slope, parking space layout, facilities are in accordance with the minimum parking building standards, but there are some works such as sidewalks and stoppers that its placement reduces the parking area and vehicle circulation and there is no slope on the road/floor so that it often causes puddles of water when it rains. Especially for women's parking lots, all of them should be placed on the basement floor to make it easier for female drivers to park their vehicles because the existing condition of the parking building is now on each floor there are special parking lots for women. There is no slope of the road / floor so that puddles often occur when it rains.

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