Analysis of Car Parking Space Capacity at Banjarnegara Culinary Center

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KEYWORDS	ABSTRACT
Parking Capacity, Parking Lot Effectiveness, Parking Index, Culinary Center, Banjarnegara	Banjarnegara's culinary center, a hub for MSME growth, faces parking inefficiencies due to inadequate planning, risking visitor discomfort and revenue loss. Despite regional infrastructure investments, parking capacity remains unstudied for future scalability. This research analyzes current parking capacity, evaluates user satisfaction, and designs an optimized layout to address projected demand. Field observations (17–23 February 2025) tracked vehicle volume, accumulation, and duration, while surveys (325 respondents) assessed safety/satisfaction. Data were analyzed using SRP metrics, SPSS validity/reliability tests, and AutoCAD simulations for parking patterns. The existing 18-SRP capacity was overwhelmed (peak: 28 vehicles, index: 150%). A 90° angled layout increased capacity to 22 SRPs. Surveys confirmed validity (r-calculated > r-table) and reliability (α=0.936), with 60% of respondents citing inadequate space. Projections show capacity deficits by 2028. Urgent adoption of the 90° pattern and tech-based solutions (e.g., sensors) is recommended to align with Banjarnegara's e-parking policies and support sustainable tourism growth.

INTRODUCTION

Banjarnegara Regency is one of the districts included in the territory of Central Java province (Funan & Suryatmojo, 2022; Muhammad et al., 2022; Ramadhani & Widiastuti, 2020). Banjarnegara Regency is an area that is economically in a period of growth and development, where the development occurs in various aspects, both developmental aspects, and development (Bahasoan et al., 2019; Dwisusanto, 2020; Sahara et al., 2024). as well as human resource developers. Where these efforts continue to be carried out through various sectors, one of which is the development and development of the MSME sector (Anwar et al., 2023; Bahrudin et al., 2024; Nurani et al., 2020).

This was conveyed by the regent at the Banjarnegara Grand Conference, Finding Economic Recovery Solutions where in the forum the Banjar-negara regent said that for approximately four years the Regency Government has focused on the direction of regional development policies in the field of infrastructure, especially in road infrastructure, because it is in line with the concept of national and provincial policies. "The goal is clear, to jointly overcome the development gap that exists in the suburbs and borders with other regions, so that it is hoped that development and economic growth in the sub-district area can be better and increased" (Banjarnegarakab.go.id).

In its construction, there have been several policy changes ranging from the arrangement of traders' venues, the creation of events, opening and closing hours, the

withdrawal of parking rates, and the arrangement of parking areas. The change in policy at the beginning of its establishment is a sign that the local government and the manager seem to have not prepared various facilities (Berman, 2019; Salamon, 2002). Especially parking arrangement and preparation. Even though the parkpir levy is one of the contributors to the Regional Original Opinion (PAD) (Duarte & Álvarez, 2021). The Banjarnegara government continues to strive to improve parking services to facilitate and provide security (Ahmad et al., 2023; Chayradafia et al., 2023). This is realized through various policies and improvements, one of which is by updating the parking system, as conveyed by the Head of the Banjarnegara Transportation Office, M. Iqbal SE, "It is time for the Transportation Agency to implement E-Parking as a form of quality, transparent and accountable services, as well as providing a sense of justice for the people who benefit from parking services. The hope is that the optimization of local revenue from the parking levy sector can increase from year to year as a support for regional development and the people of Banjarnegara," (banjarnegarakab.go.id).

Then Kaspul Asror, Dimas Langga Chandra Galuh, Lilik Hendro Widaryanto (2023) stated that the parking capacity of motorcycles and cars by describing the parking capacity variable of motorcycle and car variables that are not met in motorcycle variables. From the previous research that has been listed, this research does not follow and duplicates the previous research that has been listed, only citing some of the sources needed in the preparation of this proposal. This study uses the SRP method using the Microsoft Excel application which will then be analyzed the capacity of the parking space in the Banjarnegara culinary center.

This study aims to assess the volume capacity and service effectiveness of car parking at the Banjarnegara culinary center, focusing on user comfort and consumer confidence in the safety and facilities provided (Kusumastuti et al., 2024; Sari, 2019). It seeks to contribute to scientific knowledge in service management and support business providers in evaluating and improving parking service quality. Compared to previous studies (Lin et al., 2017; Mok et al., 2013; Wilson et al., 2020), this research introduces innovations such as proactive capacity projection using a 2-SRP annual growth rate to predict overcapacity risks by 2029 and an empirical analysis of parking angles, showing the 90° layout as the most efficient (22 SRPs vs. 18 SRPs originally) over static designs (e.g., Artoyo, 2023). Additionally, it integrates quantitative parking indices (e.g., peak index: 150%) and qualitative satisfaction data from 325 respondents, validated via SPSS (reliability: 0.936), offering a more comprehensive evaluation than prior capacity-only studies (e.g., Julianto, 2023). The study also proposes actionable, policy-aligned solutions like smart parking technology in support of Banjarnegara's e-parking initiatives, addressing implementation gaps found in earlier localized research (e.g., Messah et al., 2012).

RESEARCH METHODS

The Banjarnegara Culinary Building Research Area is located on Jl. Pemuda No. 73, Krandegan, Banjarnegara District, Central Java, with coordinates at 7°24'30"S 109°48'28"E, west of a local gas station. The research involved field observations of vehicle users visiting the culinary center from 09:00 to 17:00 over seven days, focusing on parking capacity and distributing questionnaires to key figures in Banjarnegara to assess public trust in the facility. Data was scored on a scale of 1 (Very Bad) to 5 (Very Good), with results compiled for analysis.

Observations included tracking vehicle entry and exit times, counting parking spaces (SRP), measuring parking area dimensions, evaluating parking facilities, and distributing questionnaires. Three personnel were involved in data collection: two recorded incoming vehicles and entry times, while one logged exit times. The study spanned a week (Monday to Sunday) to capture comprehensive data. Primary data covered land area, vehicle counts, and respondent feedback from five key figures, while secondary data came from credible sources like books and journals to support the analysis.

The research aimed to evaluate parking efficiency and user satisfaction at the Banjarnegara Culinary Center. By combining direct observations with stakeholder feedback, the study sought to provide actionable insights for improving the facility's management and infrastructure. The mixed-method approach ensured a holistic understanding of both quantitative metrics (e.g., vehicle turnover) and qualitative assessments (e.g., public trust and safety perceptions).

RESULTS AND DISCUSSION
Survey Results Data

Survey results data are data obtained based on the results of direct surveys in the field. Based on the results of a survey conducted at the Banjarnegara Culinary Center, data on vehicles entering and exiting for cars for 7 (Seven) days from February 17, 2025 to February 23, 2025, From the data from the survey results for 7 days, a recapitulation of the results of the number of vehicles entering and exiting the parking area of the Banjarnegara Culinary Center can be seen in Table 1. below.

Table 1. Recapitulation of Vehicles entering and exiting

Yes	Survey Day	Survey Time	Incoming Vehicle (Ei)	Outgoing Vehicle (Ex)	Vehicles that existed before the Survey Time (X)
1	Monday, 17 February 2025	09.00 – 17.00	67	61	5
2	Tuesday, 18 February 2025	09.00 – 17.00	74	65	2
3	Wednesday, 19 February 2025	09.00 – 17.00	71	63	7
4	Thursday, 20 February 2025	09.00 – 17.00	69	58	4
5	Friday, 21 February 2025	09.00 – 17.00	98	84	8
6	Saturday, 22 February 2025	09.00 – 17.00	67	49	1
7	Sunday, 23 February 2025	09.00 – 17.00	96	80	12

Source : Data processed by the compiler in February 2025

Based on Table 1, it can be seen that the highest number of car vehicles entering the parking area of the Banjarnegara culinary center occurred on Friday, February 21, 2025 with a total of 98 cars. To make it easier to understand the number of vehicles during the survey period, you can see the following figure 1.
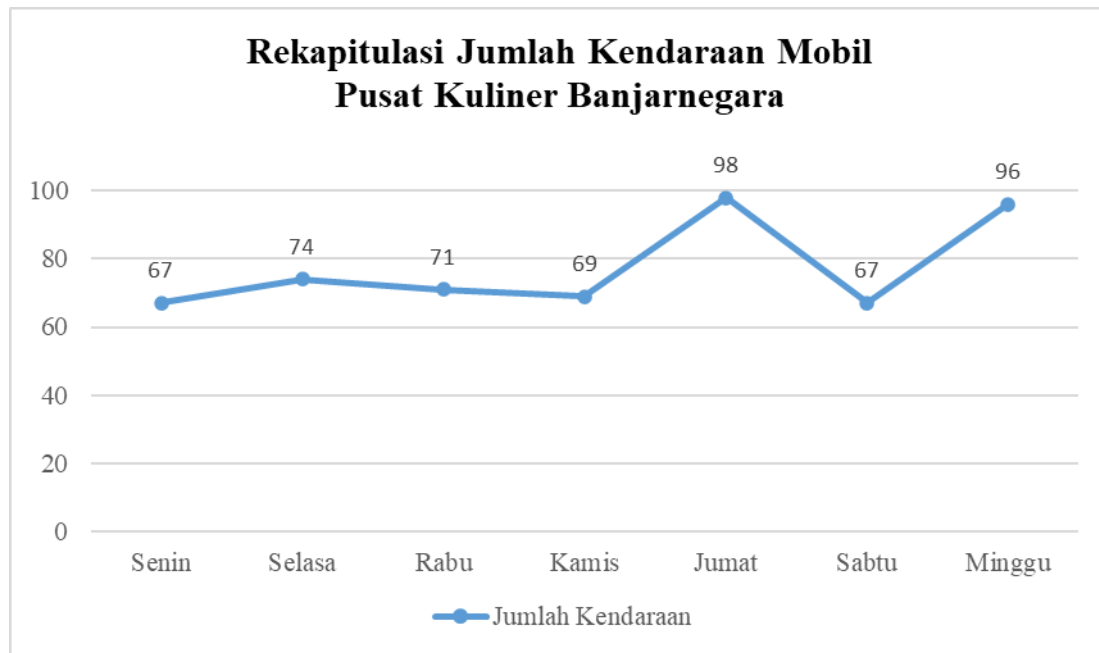
Figure 1 Vehicle Number recapitulation chart

Parking Characteristics Data

Parking characteristics are intended as basic properties that provide an assessment of parking services and parking problems that occur at the research site. The following is a calculation of factors that affect the planning and management of parking at the Banjarnegara Culinary Center, including:

a. Parking Volume

Parking volume is the number of vehicles parked at the Banjarnegara Culinary Center during the observation or survey time. Based on the data obtained in the survey, the parking volume can be known as follows:

1. Monday, 17 February 2025

    Known:

    No = 67

    X = 5

    So, the parking volume on Monday, February 17, 2025 is

    VP = No + X

    VP = 67 + 5

    VP = 72 vehicles

    The results of the calculation of parking volume during the survey time from Monday 17 February to 23 February 2025 can be seen in Table 2 below.

Table 2. Parking Volume Data

No	Survey Day	Survey Time	Incoming Vehicle (Ei)	Vehicles that existed before the Survey Time (X)	Parking Volume (VP)
1	Monday, 17 February 2025	09.00 – 17.00	67	5	72
2	Tuesday, 18 February 2025	09.00 – 17.00	74	2	76
3	Wednesday, 19 February 2025	09.00 – 17.00	71	7	78
4	Thursday, 20 February 2025	09.00 – 17.00	69	4	73

5	Friday, 21 February 2025	09.00 – 17.00	98	8	106
6	Saturday, 22 February 2025	09.00 – 17.00	67	1	68
7	Sunday, 23 February 2025	09.00 – 17.00	96	12	108

Source : Data processed by the compiler in February 2025

Based on Table 2, it can be seen that the maximum parking volume of car vehicles occurred on Sunday, February 23, 2025 with a parking volume of 108 vehicles.

b. Parking Accumulation

Accumulated parking is the total number of vehicles parked at a given time interval. Parking accumulation is calculated to find out how parking vehicles fluctuate during the survey time. Based on the survey data, the accumulated parking can be calculated, as follows:

1. Monday, 17 February 2025

Known:

No = 67

Ex = 61

X = 5

So, the calculation of parking accumulation on Monday, February 17, 2025 is

AP = No – Ex + X

AP = 67 – 61 + 5

AP = 11

A recapitulation of the results of the calculation of parking accumulation during the survey time from Monday to Sunday can be seen in Table 5.10 below.

Table 3. Parking Accumulation during the survey

No	Survey Day	Maximum Parking Accumulation	Peak Hours of Accumulation
1	Monday, 17 February 2025	11	12.55 – 13.10
2	Tuesday, 18 February 2025	11	11.10 – 11.25
3	Wednesday, 19 February 2025	15	13.50 – 14.05
4	Thursday, 20 February 2025	15	12.55 – 13.10
5	Friday, 21 February 2025	22	11.57 – 12.12
6	Saturday, 22 February 2025	19	15.55 – 16.10
7	Sunday, 23 February 2025	28	11.55 – 12.10

Source : Data processed by the compiler in February 2025

Based on Table 3, it can be seen that the maximum car parking accumulation on Sunday, February 23, 2025 at 11.50 – 12.10 WIB there were 28 cars entering and exiting the parking area of the Banjarnegara Culinary Center.

c. Parking Duration

Parking duration is the length of time spent by a vehicle parked in a parking area in the survey period. The calculation of parking duration in this study was analyzed using the equations that have been written in Chapter III. Based on the survey data, the duration of parking during the survey period can be calculated, as follows:

1. First day, Monday 17 February 2025

    The duration of parking during the 1-hour interval can be known as follows:

a) Interval 09.00 – 09.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(12)x\,(8)x(1)}{67}$$

D = 1.433

b) Interval 10.00 – 10.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(5)x\,(8)x(1)}{67}$$

D = 0.597

c) Interval 11.00 – 11.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(10)x\,(8)x(1)}{67}$$

D = 1.194

d) Interval 12.00 – 12.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(10)x\,(8)x(1)}{67}$$

D = 1.194

e) Interval 13.00 – 13.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(7)x\,(8)x(1)}{67}$$

D = 0.836

f) Interval 14.00 – 14.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(8)x\,(8)x(1)}{67}$$

D = 0.955

g) Interval 15.00 – 15.59

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(9)x\,(8)x(1)}{67}$$

D = 1.075

h) Interval 16.00 – 17.00

$$D = \frac{(Nx)x\,(X)x(l)}{Nt}$$

$$D = \frac{(6)x\,(8)x(1)}{67}$$

D = 0.716

The results of the calculation of parking duration during the survey time from Monday 17 February to 23 February 2025, then the average parking duration can be found which can be seen in Table 5.18 below.

1. Monday, 17 February 2025

Known:

d1 + d2 + ... + dn = 480 minutes

n = 67 car vehicles

Solutions:

Drerata = (d1 + d2 + ... + dn)/n

Drerata = 480/67

Drerata = 7,164 minutes

So, the recapitulation of the results of the calculation of the average parking duration from Monday to Sunday can be seen in the following Table 4.

Table 4. Recapitulation of Average Parking Duration

Yes	Survey Day	Parking Duration Average – Average (minutes)
1	Monday, 17 February 2025	7,164
2	Tuesday, 18 February 2025	6,482
3	Wednesday, 19 February 2025	6,754
4	Thursday, 20 February 2025	6,956
5	Friday, 21 February 2025	4,898
6	Saturday, 22 February 2025	7,161
7	Sunday, 23 February 2025	5,003

Source : Data obtained by the compiler in February 2025

d. Parking Capacity

Parking space capacity can be interpreted as the maximum number of vehicles that can be parked in a parking area at a certain time and condition. In this study, the capacity of the existing static parking space for car vehicles is calculated using the direct approach method.

The Direct Approach Method is a method of calculating the capacity of parking spaces by calculating directly used for parking. Based on the survey data, the Parking Capacity from measurements in the field was obtained with the number of parking lots as many as 18 tiles. Which is divided into 2 places, namely parking lot A and parking lot B.

e. Parking Index

The parking index is a comparison between the accumulated parking and parking capacity. This parking index value can indicate how much parking capacity is filled. Based on the survey results, the parking index during the survey period can be calculated, as follow

1. Monday, 17 February 2025

Parking Accumulation= 11

Parking Capacity = 18

So, the calculation of the Parking Index on Monday, February 17, 2025 is

$$\text{Indeks Parkir} = \frac{\textbf{Akumulasi Parkir x 100\%}}{\textbf{Kapasitas Parkir}}$$

$$\text{Indeks Parkir} = \frac{\textbf{11 x 100\%}}{\textbf{18}}$$

Parking Index = 61%

The results of the calculation of the parking index during the survey time from Monday 17 February to 23 February 2025 can be seen in Table 5. below.

Table 5. Parking Index Calculation Results

No	Survey Day	Parking Capacity	Maximum Accumulation	Parking Index (%)
1	Monday, 17 February 2025	18	11	61
2	Tuesday, 18 February 2025	18	11	61
3	Wednesday, 19 February 2025	18	15	83
4	Thursday, 20 February 2025	18	15	83
5	Friday, 21 February 2025	18	22	120
6	Saturday, 22 February 2025	18	19	105
7	Sunday, 23 February 2025	18	28	150

Source : Data obtained by the compiler in February 2025

Based on Table 5, it can be seen that the car parking index with the highest percentage occurred on Sunday, February 23, 2025 where there were 28 cars entering and exiting the parking area of the Banjarnegara Culinary Center.

Recapitulation of the Results of Analysis of Existing Parking Characteristics

The overall results of the calculation of parking characteristics at the Banjarnegara culinary center will be displayed in the form of a recapitulation table of the results of the analysis of parking characteristics as shown in Table 6. below.

Table 6. Recapitulation of Parking Characteristics Analysis Results

No	Parameter	Result
1	Parking Volume (kend/7 days)	581
2	Peak Parking Accumulation (Kend)	28
3	Average Duration - Average Parking (minutes)	6,345
4	Static Parking Capacity (SRP)	18
5	Peak Parking Index (%)	150

Source : Data obtained by the compiler in February 2025

From Table 6 above, a recapitulation of the results of the analysis of parking characteristics for cars in the Banjarnegara culinary center is obtained. The volume of car parking during the survey time was 581 cars with a peak parking accumulation of 28 vehicles, the average parking duration in the Banjarnegara culinary center during the survey time was 6,345 with a static parking capacity of 18 SRP, and the peak parking index in the Banjarnegara culinary center was obtained at 150%.

Effectiveness of Using Parking Patterns

From the data obtained during the survey at the Banjarnegara culinary center, it was found that the parking pattern uses a 45º pattern which can accommodate 8 parking lots for parking A and 10 lots for parking B. With a 45º parking pattern has disadvantages where there is still empty space wasted. So, the compiler wants to find out the effectiveness of the parking pattern currently used with a 30º and 90º angle parking pattern to find out which parking pattern is more effective in accommodating cars in the Banjarnegara culinary center.

a. Parking Pattern Planning

1) 30o Angled Parking Pattern

The 30o angular parking pattern in the Banjarnegara culinary center was drawn using *AutoCAD software,* from the image 9 parking lots A and 11 parking lots B were obtained by calculating the number of parking lots available in the drawing. The 30o angular parking pattern has an area of approximately 8.8 m2 for each plot. From the area of parking area A and parking B is approximately 194.89 m2.

Figure 2. 30º Angle Parking Pattern

2) 45o Angled Parking Pattern

The 45o angular parking pattern was drawn using *Coreldraw software,* from the image 8 parking lots A and 10 parking lots B were obtained by calculating the number of parking lots available in the image. The 45o angular parking pattern has an area of approximately 8.8 m2 for each plot. Of the parking area A and B, approximately 194.89 m2.
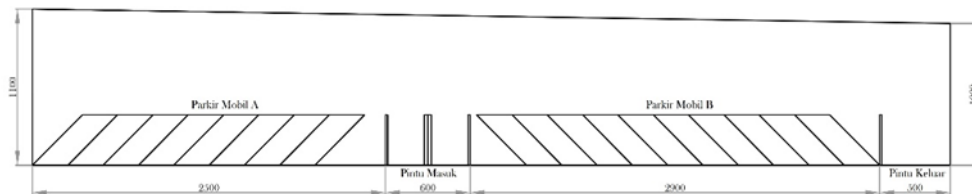
Figure 3. 45º Angle Parking Pattern

3) 90o Angled Parking Pattern

The 90o angular parking pattern was drawn using *Coreldraw software,* from the image 10 parking lots A and 12 parking lots B were obtained by calculating the number of parking lots available in the image. The 90o angular parking pattern has an area of approximately 8.8 m2 for each plot. From the area of parking area A and parking B is approximately 194.89 m2.
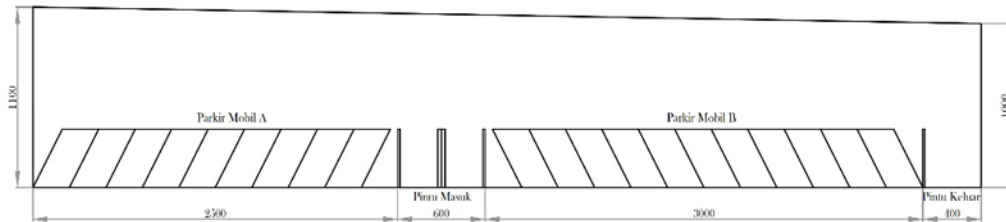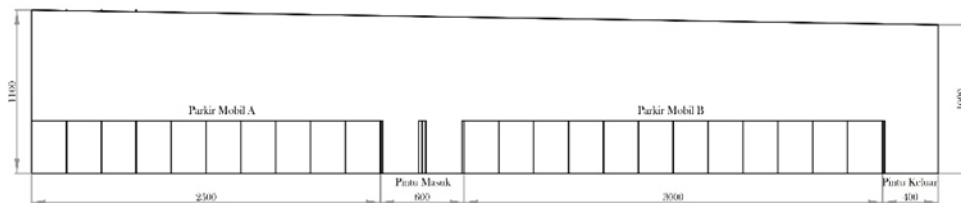

Figure 4. 90º angle parking pattern

4) Effective Parking Patterns

Angular parking patterns have their own level of effectiveness. In this study, the effectiveness value in question is that the parking space is able to accommodate the maximum number of cars or with the largest number without wasting a lot of space. The most effective parking pattern to be applied to parking in the Banjarnegara culinary center is the parking pattern forming an angle of 90o because it can accommodate the maximum number of parked vehicles, which is 10 plots for parking A and 12 plots for parking B.

Analysis of Parking Space Units

Parking space units are the calculation of the number of spaces needed to accommodate vehicles that require parking based on the facilities and functions of a land use. In the analysis of parking space units, data on parking space needs is needed which can be seen as follows.

1. The calculation of car parking needs on Monday, February 17, 2025 can be seen below.
   Known:
   Average duration (Dr) = 1.19 hours
   Volume (VP)   = 72 Kend
   Survey Length (P)   = 8 hours So:
   Parking Requirements (Z)   = (VP x Dr)/P
   = (72 x 1.19) / 8
   = 10.71 SRP
   = 11 SRP

The need for parking is the amount of parking space needed so that it can accommodate parked vehicles based on observations and calculations in the field. The factors that affect the need for parking space are the characteristics of parking, namely the parking volume, the average duration of parking, and the length of observation time.

The results of the calculation of parking needs in Banjarnegara's culinary centers can be seen in Table 7 below:

Table 7. Parking Requirements Results

Yes	Survey Day	Survey Lama (T)	Average Parking Duration (Dr)	Parking Volume (VP)	Parking Requirements (Z)
1	Monday, 17 February 2025	8	1,19	72	11
2	Tuesday, 18 February 2025	8	1,08	76	10
3	Wednesday, 19 February 2025	8	1,12	78	11
4	Thursday, 20 February 2025	8	1,16	73	11
5	Friday, 21 February 2025	8	0,82	106	11
6	Saturday, 22 February 2025	8	1,19	68	10
7	Sunday, 23 February 2025	8	0,87	108	12

Source : Data obtained by the compiler in February 2025

Based on Table 7, it can be seen that the maximum parking needs will occur on Sunday, February 23, 2025 with a total of 12 Parking Space Units (SRP). To make it easier to read, you can see figure 5.3 below.
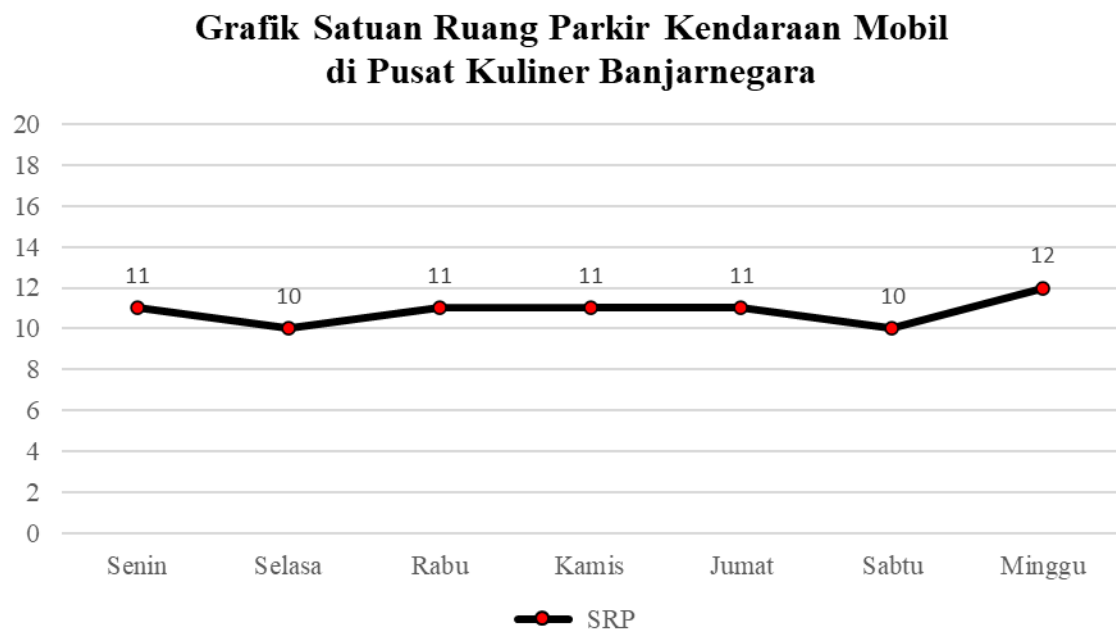
Grafik Satuan Ruang Parkir Kendaraan Mobil di Pusat Kuliner Banjarnegara

Figure 5. Parking Unit Graph

a. Overview of Parking Space in the Next Five Years

The number of consumers every year is always increasing, therefore the compiler tries to project the parking space unit for the next 5 (five) years. Assuming an increase of 2 parking space units (SRP) every year and parking capacity using current conditions. For the current condition, the maximum parking need is taken from the results of the calculation of the Z formula, which is as many as 12 parking space units (SRP). The calculation of parking needs for the next five years can be seen in Table 8 below.

Table 8. Overview of Parking Spaces in the Next Five Years

Year	Parking Capacity	Parking Requirements	Difference
2025	18	12	6
2026	18	14	4
2027	18	16	2
2028	18	18	0
2029	18	20	-2

Source : Data obtained by the compiler in February 2025

From Table 8, it can be concluded that in the growth of parking needs in the next five years, there will be 2 SRP growth every year. And for the next five years, the parking area of the Banjarnegara culinary center will exceed the existing capacity. So, the compiler has made a redesign of the effectiveness of the parking pattern which can be a solution if there is an overcapacity of vehicles within the next five years.

Parking Satisfaction and Safety Analysis

Consumer satisfaction and safety in parking in the parking area of the Banjarnegara culinary center are variables that will be used in the questionnaire. From the research that has been carried out, the following results were obtained:

a. Visitor Characteristics

The characteristics of visitors to the Banjarnegara culinary center are a group or group that is divided into 3 factors, including based on age factors, gender factors and the number of times visited, the following are the results of the analysis based on these 3 factors:
1. The results of the survey of visitors by gender can be seen in Table 9 below:

Table 9. Respondents by gender

No	Survey Day	Male – Male	Woman	Sum
1	Monday, 17 February 2025	19	13	32
2	Tuesday, 18 February 2025	23	25	48
3	Wednesday, 19 February 2025	26	17	43
4	Thursday, 20 February 2025	27	23	50
5	Friday, 21 February 2025	39	20	59
6	Saturday, 22 February 2025	17	14	31
7	Sunday, 23 February 2025	35	27	62
Sum		186	139	325

Source : Data obtained by the compiler in February 2025

2. The results of the survey of visitors by age can be seen in Table 10 below:

Table 10 Respondents by age

No	Survey Day	15-25 year	26-35 year	36-45 year	46-55 year	>55 year
1	Monday, 17 February 2025	10	14	8	0	0
2	Tuesday, 18 February 2025	22	10	16	0	0
3	Wednesday, 19 February 2025	16	27	0	0	0
4	Thursday, 20 February 2025	12	24	9	5	0
5	Friday, 21 February 2025	19	29	11	0	0
6	Saturday, 22 February 2025	24	7	0	0	0
7	Sunday, 23 February 2025	18	31	13	0	0
Sum		121	142	57	5	0

Source : Data obtained by the compiler in February 2025

3. The results of the visitor survey based on the number of visits to the Banjarnegara culinary center can be seen in Table 11 below:

Table 11. Respondents based on the number of visits to Banjarnegara culinary centers

No	Survey Day	1 Time	2 Times	3 Times	4 times	> 4 times
1	Monday, 17 February 2025	5	7	10	10	0
2	Tuesday, 18 February 2025	8	8	15	7	10
3	Wednesday, 19 February 2025	12	3	8	15	5
4	Thursday, 20 February 2025	7	25	11	6	1
5	Friday, 21 February 2025	17	12	10	18	2
6	Saturday, 22 February 2025	4	8	7	10	2
7	Sunday, 23 February 2025	20	12	14	8	8
Sum		73	75	75	74	28

Source : Data obtained by the compiler in February 2025

b. Facility Characteristics

The completeness of service facilities is the physical resources that exist before services can be provided to consumers. Examples of facilities include the condition of the facility, completeness, level of security, especially related to what is wanted, experienced, or received directly by visitors, the results of the analysis can be explained as follows:

The results of the visitor survey based on the availability of parking lots in the Banjarnegara culinary center can be seen in Table 12 below:

Table 12. Respondents based on the availability of parking space in the Banjarnegara culinary center

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	0	8	14	10
2	Tuesday, 18 February 2025	2	11	27	8
3	Wednesday, 19 February 2025	5	15	19	4
4	Thursday, 20 February 2025	0	5	38	7
5	Friday, 21 February 2025	6	9	35	9
6	Saturday, 22 February 2025	0	1	27	3
7	Sunday, 23 February 2025	3	11	42	6
Sum		16	60	202	47

Source : Data obtained by the compiler in February 2025

4. The results of the visitor survey based on the availability of lighting facilities in the Banjarnegara culinary center can be seen in Table 13 below:

Table 13 Respondents based on the availability of lighting facilities in the Banjarnegara culinary center

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	0	12	12	8
2	Tuesday, 18 February 2025	0	27	19	2
3	Wednesday, 19 February 2025	8	15	17	3
4	Thursday, 20 February 2025	3	19	23	5
5	Friday, 21 February 2025	2	24	28	5
6	Saturday, 22 February 2025	0	8	22	1
7	Sunday, 23 February 2025	0	20	38	4
	Sum	13	125	159	28

Source : Data obtained by the compiler in February 2025

5. The results of the visitor survey based on the availability of entrance and exit gates at the Banjarnegara culinary center can be seen in Table 14 below:

Table 14 Respondents based on the availability of entrance and exit gates at Banjarnegara culinary center

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	0	10	18	4
2	Tuesday, 18 February 2025	1	14	24	9
3	Wednesday, 19 February 2025	3	7	25	8
4	Thursday, 20 February 2025	0	19	28	3

5	Friday, 21 February 2025	0	16	31	12
6	Saturday, 22 February 2025	0	10	19	2
7	Sunday, 23 February 2025	2	5	48	7
Sum		6	81	193	45

Source : Data obtained by the compiler in February 2025

6. The results of the visitor survey based on the availability of security systems at the Banjarnegara culinary center can be seen in Table 15 below:

Table 15 Respondents based on the availability of security systems in Banjarnegara culinary centers

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	8	13	9	2
2	Tuesday, 18 February 2025	15	20	13	0
3	Wednesday, 19 February 2025	12	7	21	3
4	Thursday, 20 February 2025	14	18	12	6
5	Friday, 21 February 2025	21	5	33	0
6	Saturday, 22 February 2025	2	9	15	5
7	Sunday, 23 February 2025	7	31	22	2
Sum		79	103	125	18

Source : Data obtained by the compiler in February 2025

7. The results of the visitor survey based on the availability of security officers at the Banjarnegara culinary center can be seen in Table 16 below:

Table 16. Respondents based on the availability of security officers at the Banjarnegara culinary center

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	2	18	7	5
2	Tuesday, 18 February 2025	4	27	10	7
3	Wednesday, 19 February 2025	10	31	2	0
4	Thursday, 20 February 2025	4	23	20	3
5	Friday, 21 February 2025	5	18	28	8
6	Saturday, 22 February 2025	7	12	11	1
7	Sunday, 23 February 2025	0	44	6	12
	Sum	32	173	84	36

Source : Data obtained by the compiler in February 2025

8. The results of the visitor survey based on satisfactory parking services at the Banjarnegara culinary center can be seen in Table 17 below:

Table 17. Respondents based on parking services are satisfactory in the Banjarnegara culinary center

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	1	4	20	7
2	Tuesday, 18 February 2025	8	9	31	0
3	Wednesday, 19 February 2025	1	0	24	18
4	Thursday, 20 February 2025	5	19	17	9
5	Friday, 21 February 2025	13	20	26	0
6	Saturday, 22 February 2025	8	12	3	8
7	Sunday, 23 February 2025	2	18	42	0
Sum		38	82	163	42

Source : Data obtained by the compiler in February 2025

9. The results of the visitor survey based on guaranteed vehicle safety in the Banjarnegara culinary center can be seen in Table 18 below:

Table 18. Respondents based on guaranteed vehicle safety in the Banjarnegara culinary center

No	Survey Day	Disagree	Simply Agree	Setuju	Strongly agree
1	Monday, 17 February 2025	3	12	17	0
2	Tuesday, 18 February 2025	7	24	15	2
3	Wednesday, 19 February 2025	0	17	19	7
4	Thursday, 20 February 2025	9	30	6	5
5	Friday, 21 February 2025	5	26	28	0
6	Saturday, 22 February 2025	4	25	2	0
7	Sunday, 23 February 2025	11	21	30	0
Sum		39	155	117	14

Source : Data obtained by the compiler in February 2025

c. Measurement Scale

The measurement scale is an agreement that is used as a reference to determine the short length of the interval in the measuring instrument, so that the measuring instrument when used in measurement can produce quantitative data. Singarimbun (1995) divides the measurement scale into four types, namely: nominal scale, ordinal scale, interval scale, and ratio scale. In this study, quantitative measurement was used using a questionnaire on a scale of 1 to 4. The results of which will be a validity test and reliability test to find out the satisfaction and safety index of parking at the Banjarnegara Culinary Center.

d. Validity Test

Validity comes from the word validity which means the extent of the accuracy and precision of a measuring instrument in performing its measurement function (Azwar 1986). In addition, validity is a measure that shows that the variables being measured are indeed the variables that the researcher wants to study (Cooper and Schindler, in Zulganef, 2006).

Validity in the study states the degree of accuracy of the research measurement tool to the actual content being measured. Validity test is a test used to show the extent of the measuring tool used in a measurement of what is being measured. Ghozali (2009) stated that the validity test is used to measure the validity of a questionnaire or not. A questionnaire is said to be valid if the questions on the questionnaire are able to reveal something that the questionnaire will measure. The basis for taking the validity test is that the calculation of the value of the rtable > calculation is the same as valid if the calculation < rtable is declared invalid. The validity test in this study used N = 325, then the rtable value for 5% significance was 0.091, for the results of the validity test can be seen in Table 19 below.

Table 19. Results of data processing in SPSS

Correlations

		Q4	Q5	Q6	Q7	Q8	Q9	Q10	Total
Q4	Pearson Correlation	1	,761**	,758**	,706**	,695**	,574**	,647**	,852**
	Sig. (2-tailed)		,000	,000	,000	,000	,000	,000	,000
	N	325	325	325	325	325	325	325	325
Q5	Pearson Correlation	,761**	1	,737**	,814**	,740**	,628**	,693**	,894**
	Sig. (2-tailed)	,000		,000	,000	,000	,000	,000	,000
	N	325	325	325	325	325	325	325	325
Q6	Pearson Correlation	,758**	,737**	1	,748**	,707**	,649**	,695**	,878**
	Sig. (2-tailed)	,000	,000		,000	,000	,000	,000	,000
	N	325	325	325	325	325	325	325	325
Q7	Pearson Correlation	,706**	,814**	,748**	1	,666**	,692**	,696**	,894**
	Sig. (2-tailed)	,000	,000	,000		,000	,000	,000	,000
	N	325	325	325	325	325	325	325	325
Q8	Pearson Correlation	,695**	,740**	,707**	,666**	1	,507**	,610**	,822**
	Sig. (2-tailed)	,000	,000	,000	,000		,000	,000	,000
	N	325	325	325	325	325	325	325	325
Q9	Pearson Correlation	,574**	,628**	,649**	,692**	,507**	1	,720**	,805**
	Sig. (2-tailed)	,000	,000	,000	,000	,000		,000	,000
	N	325	325	325	325	325	325	325	325
Q10	Pearson Correlation	,647**	,693**	,695**	,696**	,610**	,720**	1	,845**
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000		,000
	N	325	325	325	325	325	325	325	325
Total	Pearson Correlation	,852**	,894**	,878**	,894**	,822**	,805**	,845**	1
	Sig. (2-tailed)	,000	,000	,000	,000	,000	,000	,000	
	N	325	325	325	325	325	325	325	325

**. Correlation is significant at the 0.01 level (2-tailed).

Source : Data obtained by the compiler in February 2025

The results of data processing from the questionnaire and the calculation of the table using the SPSS application were obtained as in Table 20 in this section.

Table 20 Validity test processing results

	Q4	Q5	Q6	Q7	Q8	Q9	Q10
r tabel	0,091	0,092	0,093	0,094	0,095	0,096	0,097
r hitung	,852**	,894**	,878**	,894**	,822**	,805**	,845**
N	325	325	325	325	325	325	325
Hasil	Valid	Valid	Valid	Valid	Valid	Valid	Valid

Source : Data obtained by the compiler in February 2025

As in Table 20, the results of the data r table are smaller than r calculated, the validity test related to the questionnaire to determine the satisfaction of facilities and parking safety in the Banjarnegara culinary center is declared valid.

e. Reliability Test

Reliability comes from the word reliability. The definition of reliability is the consistency of measurement. Sugiharto and Situnjak (2006) stated that reliability refers to an understanding that the instruments used in research to obtain information used can be trusted as a data collection tool and are able to reveal actual information in the field.

According to Sumadi Suryabrata (2004: 28), reliability shows the extent to which the measurement results with the tool can be trusted. The measurement results must be reliable in the sense that they must have a level of consistency and steadiness. To see if the questionnaire has consistency if the measurement is done repeatedly. The questionnaire is said to be reliable if the Cronbach alpha value > 60 this is evidenced by the results of the reliability test on the questionnaire with a large result of 60 as shown in Table 21 below:

Table 21 Reliability test processing results

Reliability Statistics

Cronbach's Alpha	N of Items
,936	7

Source : Data obtained by the compiler in February 2025

CONCLUSION

The research on car parking spaces at the Banjarnegara Culinary Center, conducted from February 17–23, 2025, revealed that 581 vehicles visited, with a peak accumulation of 28 vehicles and the highest parking demand (108 vehicles, 12 SRPs) occurring on Sunday, February 23. Analysis projected increased visitor numbers over the next five years, necessitating expanded capacity from the current 18 to 22 spaces using a more efficient 90° angled parking pattern. A survey of 325 respondents confirmed high satisfaction and safety (validity test: r-calculated > r-table at 5% significance; reliability score: 0.936 > 0.600 Cronbach alpha). Future research should explore peak-season demand, smart parking technologies (e.g., sensor-based systems, dynamic pricing), and environmental/accessibility impacts (e.g., EV charging, inclusive design) to develop sustainable, scalable solutions for Banjarnegara's growing culinary tourism sector.

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