

Arrangement of the Street Parking at the Pomalaa Market of Kolaka Regency

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Abstract: The parking in the Pomalaa Market is not well organized yet, parked vehicles on the road cause traffic problems. This research aims to analyze; (1) Existing parking on the roads viewed from the aspect of the layout and geographical parking, (2) Configuration of parking layout that allows parking on the street while maintaining the smooth flow of traffic, and (3) Optimal use of street parking in increasing the Income of Regional Government. This research is descriptive qualitative and quantitative by using survey methods. The results of this research indicate that (1) parking in the Pomalaa Market is very disturbing the smoothness of traffic, (2) Economic Street that allow is used for parking vehicles with parallel configuration and angle 30⁰ on one side of the road, while Hati Gembira Street, Konggasa Street and Hati Senang Street are only used for motorcycle parking. (3) Parking management in the Pomalaa Market is not optimal yet and has not fulfilled the target of receiving retribution that has been set.

Keywords: *Traffic, Market area, on Street Parking*

I. INTRODUCTION

Traffic problems affect almost all major cities in Indonesia, if not handled seriously will adversely affect the development of the city. Traffic congestion associated with very high movement is not followed by the growth of transportation network infrastructure [1]. The road space is very limited, the capacity is low compared to the growth of traffic volume and some of the roads are used on the street parking, informal sector activities such as street vendors, side-effects of land use activities and other causes.

Parking facilities at service centers, offices, shopping, restaurants and other potential activities as traffic generators, generally do not provide adequate parking facilities so that the road is used as a parking space and can reduce the width of the road traffic on the highway and capacities (2), whereas the parking facility serves as a traffic controller [3] and is a potential for Income of Regional Government for parking fees.

The parking in the Pomalaa market is not well organized; parked vehicles on the road have an effect on road capacity and cause traffic problems. The target of parking policy is to control the number of vehicles entering an area, increase the Income of Regional Government to improve the road function, and increase traffic smoothness. Parking on the road reduces road capacities, harming road users due to congestion that is not proportional to the Income of Regional Government from the parking. In contrast, road widening costs a lot, so it is necessary to arrange the parking spaces on the road to optimize the utilization of road capacities [4].

The parking optimization is expected to increase contribution to the Income of Regional Government (IORG), increase object parking retribution is done by Kolaka Regency Government by stipulating the Regulation Number 5 in 2011 (5). Parking capacities with optimization of parking layout is used properly is expected to streamline the use of road spaces for parking and can be a source of the Income of Regional Government for the government. Therefore, the subjects in this research i.e; i) existing parking on the roads viewed from the layout and geography aspects of parking movement, ii) configuration of the parking layout and optimizing the use of the street parking in increasing the Income of Regional Government.

The existence of different parking requirements, causing conflicting demands and tendencies towards free parking desire, convenient for shopping purposes, convenience store: ease of loading and unloading and pleasant parking for customers there will be no congestion [6].

Characteristics of parking related to the amount of parking needs that must be provided [7]. Parking characteristics include capacity, volume, duration, space usage rate, index and parking requirements.

Parking on the roads is difficult done on roads with limited space, reduced road capacity, causing congestion cases. Parking position on the road in parallel is only able to accommodate a few vehicles, not too disturbing the movement of traffic compared to the parking angle (angle positioning) [8].

The research is located in the Pomalaa Market in Pomalaa District of Kolaka Regency, as in Figures 1 and 2.

Table 1. Pomalaa market roads

Location	Long Road	Roadside	Road body
	(m)	(m)	(m)
Ekonomi Street	168	2,5	8
Hati Gembira Street	134	2	4
Konggoasa Street	163	1,2	3,5
Hati Senang Street	145	0,7	4

Source: Results of the analysis, 2016



Figure 1. Research Sites

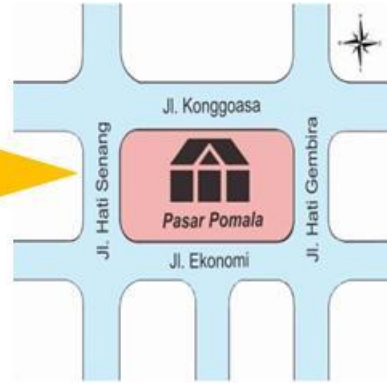


Figure 2. Research Sites

II. RESULTS AND DISCUSSION

Pomalaa Market is built on an area of approximately 10,000 m² consisting of an area of 8,500 m² of built area used for market buildings and areas used for parking and circulation of approximately 1,500 m². The market is surrounded by four streets as well as the parking image and traffic conditions that become chaotic requires parking setup as shown in Figure 3.



Figure 3. Condition of the Street Parking

Parking in the Pomalaa Market includes the parking equipments on street parking located on the four streets around it.

Road and Parking Capacities

As a result of the use of roads as parking lots, there is a reduction in road capacities, and affect the service, effectiveness and convenience of the road segment based on Table 2.

Table 2. Parking area one side with parking corner position

Location	The effective long street (m)		Remnant of the space The roadside used one side parking (m)		Area is used Parking (m ²)	
	Parallel	Angled	Parallel	30°	Parallel	30°
Ekonomi Street	168	159	8,0	5,5	386	795
Hati Gembira Street	134	125	3,7	-	308	-
Konggoasa Street	163	154	2,4	-	375	-
Hati Senang Street	145	136	2,4	-	335	-
				Total	1.404	795

Table 3. Condition of market parking space by position of parking corner

Location	Configure parking corner					
	Road body	Parallel	30°		45°	
		Roadside and Road body	Effective parking space (maneuver)	Road body after used parking	Effective parking space (maneuver)	Road body after used parking
(m)	(m)	(m)	(m)	(m)	(m)	
Ekonomi Street	10,5	8,0	7,4	2,9	8,80	0
Hati Gembira Street	6,0	3,7	7,6	0	9,30	0
Konggoasa Street	4,7	2,4	7,6	0	9,30	0
Hati Senang Street	4,7	2,4	7,6	0	9,30	0

Source: Results of the analysis, 2017

Explanation:

Not allow for parking of four wheeled vehicles seen from the aspect of traffic space

- Ekonomi Street allows for parking vehicles, separating the 6.4 m road body (including the 2.5 meters roadside), Hati Gembira Street, Konggoasa Street, and Hati Senang Street are not feasible for parking four-wheeled vehicles, can only be used for motorcycle parking.
- Parking configurations with 450,600 and 900 angles do not allow for parking as they relate to traffic spaces on the roadside.

Table 4. Road capacity after one-side parking used

Location	Side of the road			Road capacity (pcu/hour)		
	Parking Configuration			Parallel	30°	90°
	Four wheels		Motorcycle			
	Parallel	30°	90°			
Ekonomi Street	8,0	2,9	-	2.780	1.170	-
Hati Gembira Street (*)	-	-	3,7	-	-	1.490
Konggoasa Street(*)	-	-	1,6	Not passable traffic		
Hati Senang Street(*)	-	-	1,1	Not passable traffic		

Explanation: For motorcycle parking

Parking Accumulation

Accumulated Average car parking per day as shown in Figure 4.

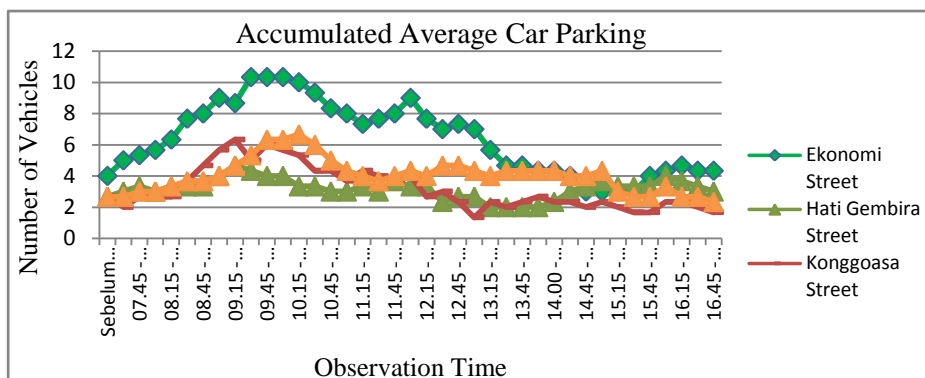


Figure 4. Average accumulated parking of cars

Figure 4 shows that the accumulated parking of two-wheeled vehicles are highest Economic Week on Sunday which is the market day at 11.00 -11.15 as many as 43 units. The highest is on Hati Gembira Street on

Sunday at 08.45-09.00 is 24 units, Konggoasa Street at 10:45 o'clock -11.00 as many as 24 units and Hati Senang Street at 10.15-10.30 as many as 19 units. The lowest accumulation on Saturday at Ekonomi Street is 1 unit at 11.15-11.30 and at Hati Senang Street at 13.30-13.45 as much as 1 unit. While on the day of the lowest accumulation on Konggoasa Street at 4:45 pm to 4:00 pm as many as 4unit and Hati Gembira Street at 15.15-15.30 as many as 4 units and for Monday the accumulation of the lowest two-wheeled vehicles on Konggoasa Street at 15.15 - 15.30 as much as 2 units. Average accumulation of motorcycle parking per day is as in Figure 5.

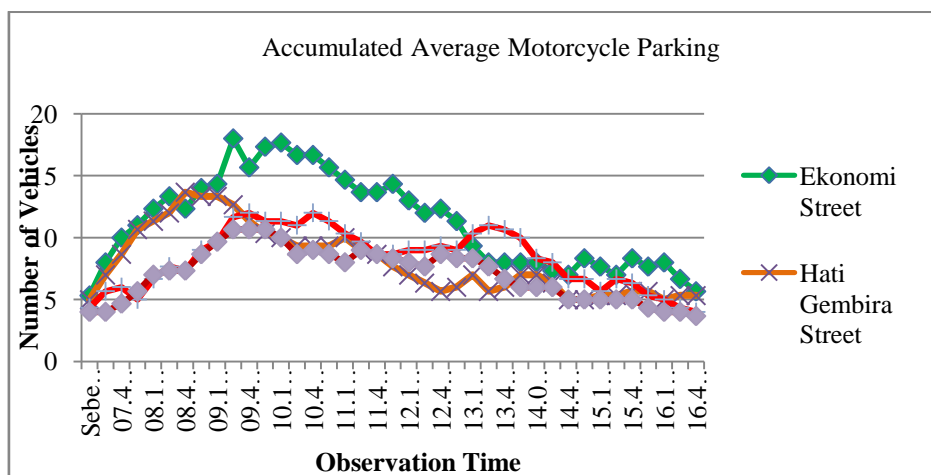


Figure 5. Average Accumulated Parking of Motor Vehicles

Duration and Use of Parking

The average vehicle parking time is 12 minutes for the four wheels and 6 minutes for the motorcycle located at the parking location as shown in Table 5.

Table 5. Duration of parking

Location	Average Duration of Car Parking	Average Parking Duration Motorcycles
	(minute/vehicle)	(minute/Vehicle)
Ekonomi Street	6,04	2,82
Hati Gembira Street	14,41	3,95
Konggoasa Street	12,83	5,63
Hati Senang Street	13,05	10,56
Average	11,58	5,75

Source: Results of the analysis, 2017

The level of parking usage in this case is the ratio of parking volume with static capacity.

Table 6. Parking usage level

Location	Type of Transportation	Average Parking Volume			Capacity Static	PUL Average
		Saturday	Sunday	Monday		
Ekonomi Street	Car	70	87	67	33	2,26
	Motorcycle	108	179	110	300	0,44
Hati Gembira Street	Car	62	72	61	27	2,41
	Motorcycle	117	147	98	195	0,62
Konggoasa Street	Car	62	75	64	33	2,03
	Motorcycle	123	140	105	140	0,88
Hati Senang Street	Car	59	71	60	29	2,18
	Motorcycle	106	149	104	110	1,09
Average PUL cars = 2,22						
Average PUL motorcycles = 0,76						

Source: Results of the analysis, 2017

The lowest of Parking Usage Level for cars are 1,94 on Monday and the highest is 2,64 on Sunday. The motorcycles are the lowest is 0,36 on Saturday and the highest are 0,96 on Saturday.

Potential income for parking

The potential income in Table 7, car parking and motorcycle parking based on existing conditions in the field, as shown in Table 7.

Table 7. Potential of parking retribution

Location	Type of Transportation	Average Vehicle	Parking Rates	Results a year
		(unit/year)	(IDR)	(IDR)
Parking by the side of the road (on street parking)	Car	98.550	4.000	394.200.000
	Motorcycle	180.797	2.000	361.593.333
Total		279.347		755.793.333

Source: Department of Public Works of Kolaka Regency, 2016

Parking management in the Pomalaa market area of the future will become one of the sources of the Income of Regional Government (IORG) in Kolaka Regency. Determination of parking levy target in Kolaka Regency become the source of the Income of Regional Government (IORG) can be increased which relation far from the planned target as in Table 8.

Table 8. Retribution of IORG in Kolaka Regency

Fiscal Year	Types of Retribution	Target (IDR)	Realization (IDR)	(%)
2015	Special Parking space	39.800.000,00	31.613.000,00	79,43
	Airport Pass	38.250.000,00	38.750.000,-	101,31
2016	Special Parking space	60.000.000,00	39.960.000,00	66,6
	Airport Pass	42.000.000	58.150.000,00	138,45

Source: Department of Public Works of Kolaka Regency, 2016

Table 8 shows the targets and realization of parking-specific place retribution which includes retribution on the street parking of Pomalaa Market in 2015 and 2016 only reaching an average of 73%, where the realization of parking-specific places never reaches the target. It is seen that the potential for greater parking revenues compared to predetermined targets, while the actual acceptance of parking-specific retribution has not been able to meet the target. Some of the dominant factors causing the absence of revenue targets are; a) Lack of level of awareness of Kolaka regency community in carrying out its obligations, b) The human resources of an untapped apartment are utilized, and c) Some charges are declared no longer valid because they are not in accordance with applicable laws and regulations.

III. CONCLUSION AND RECOMMENDATION

Parking is very disturbing traffic smoothness, because the body and shoulder of the road to be an alternative location of the park. The Economy road segment allows for parking of vehicles with parallel configurations and 300 angles on one side of the road. Hati Gembira Street, Konggasa Street and Hati Senang Street can only be used for motorcycle parking. Parking spaces are required on the road side with restrictions on parking spaces and vehicle circulation arrangements. Parking contributions can be improved by the management and targeting of parking fees based on parking potential, the effectiveness of retribution rates, the implementation of progressive tariffs, the addition of parking attendants, and increased parking management capabilities.

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