Traffic Impact Analysis Due to the Construction of Type B Terminals in Paser Regency Traffic Impact Analysis due to the Construction of Type B Terminal in Paser Regency

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Abstract— *This study aims to get an overview of the impact of traffic caused by the construction of type B terminals in Paser Regency on existing conditions and construction period. Based on Law number 22 of 2009 article 99 paragraph 1, it is stated that "Any plan to build a center of activity, settlements, and infrastructure that will cause disturbances in security, safety, order, and smooth running of traffic and road transport must be carried out a traffic impact analysis". The results of the disclaimer on activities based on the Regulation of the Minister of Transportation No. 17 of 2021 are included in the category of moderate rise. The results of the analysis of the performance of 11 road sections show that the condition of the road service level in the existing condition is the same as the condition during the construction period, namely having an LOS value = A to C which means that there are no problems with the condition of the existing road sections, both in existing conditions and in construction conditions. Meanwhile, the results of the performance assessment at the intersection are 2 intersections, showing the existing conditions and construction period conditions of the LOS value of the intersection is B, which means that there is no disturbance in the existing intersection conditions. The recommendation of this study is that it is necessary to regulate the circulation and maneuvering of construction vehicles so as not to cause traffic disturbances on sections and intersections around the site of type B terminal construction activities in Paser Regency*.

Keywords— Traffic Impact Analysis, Terminal Type B, Paser Regency.

I. INTRODUCTION

The construction of an infrastructure in general can have a certain impact on the movement of traffic around it. The magnitude of the impact on traffic that occurs needs to be carried out a study so that problems that have the potential to occur can be handled wisely. This traffic study was carried out on the Paser Type B Passenger Terminal Development plan to predict the impact resulting from these activities at each stage.

The impact of traffic that occurs is the impact of the emergence of new journeys that originate from each stage of activity, changes in the flow of movement at each stage of activity, as well as from the traffic flow that increases every year. Therefore, it is necessary to conduct a comprehensive study on traffic aspects for these operational plan activities by collecting primary and secondary data to find out how the impact of the operation of Paser Type B Passenger Terminal on the traffic network around the study site.

Based on Law number 22 of 2009 article 99 paragraph 1, it is stated that "Every plan to build activity centers, settlements, and infrastructure that will cause disturbances in security, safety, order, and smooth running of traffic and road transportation must be carried out a traffic impact analysis".

Based on the Regulation of the Minister of Transportation No. 17 of 2021, it is stated that the minimum limit of activities required to be carried out a Traffic Impact Analysis Study is carried out. In line with the laws and regulations that have been mentioned, the construction of Paser Type B Passenger Terminal with a total area of 10,148 m2 requires a Traffic Impact Analysis study (hereinafter referred to as Andalalin) in order to support everything related to safety, order and smooth traffic from road users around the activity site.

Traffic management arrangements and infrastructure supporting the smooth accessibility and mobility of road users that must be made are the responsibility of the builders/initiators who demonstrate the fulfillment of substantial contributions as a

consequence of what has been built (Polluter pays principle, Rio Declaration 1992) with the principle of externality that development prioritizes a "Cost Effective" agenda to know that handling and prevention is the cheapest price, compared to correcting mistakes that can occur later. After the preparation of the Andalalin document, the expected output is the formation of a traffic impact handling plan as a reference for taking action for the construction of project activities.

The purpose of this study was to conduct a study on the analysis of traffic impacts due to the construction of Type B Passenger Terminal in Paser Regency. With the construction of the type B terminal, of course, it will cause traffic impacts around the construction site, so it is necessary to have a study and solution of the traffic problem.

II. LITERATURE REVIEW

According to Murwono (2003), the phenomenon of traffic impact is caused by the construction and operation of activity centers that cause a considerable traffic revival, such as shopping center offices, terminals, and others. It further said that the traffic impact occurs in 2 (two) stages, namely: Construction / construction stage. At this stage there will be a resurgence of traffic due to material transportation and mobilization of heavy equipment that burdens road sections on material routes and post-construction stages / when operating. At this stage, there will be a revival of traffic from visitors, employees and sellers of transportation services that will burden certain road sections, as well as the emergence of a revival of vehicle parking..

Traffic impact analysis is basically an analysis of the effect of land use development on the system of movement of traffic flows - traffic around it caused by the rise of new traffic, diverted traffic, and by vehicles in and out of / to the land (Dikun and Arif 1993).

Traffic impact analysis is basically an analysis of the effect of land use development on the surrounding traffic flow movement system resulting from the rise of new traffic, diverted traffic, and by vehicles in and out of/to the land (Tamin 2000).

The purpose of analysis of traffic impacts is to: (1) predict the impact of an area development; (2) determine the form of improvement/improvement necessary to accommodate changes that occur as a result of new development; (3) align decisions on land use with traffic conditions, the number and location of access, and alternatives to improvement; (4) identify issues that may affect the developer's decision to proceed with the proposed project; and (5) as a tool for supervision and evaluation of the implementation of traffic management and engineering (Dikun and Arif 1993).

There are 5 factors / elements that will have an impact if the land use system interacts with traffic - the five elements are: 1. Awakening / Travel Pull Elements, which are influenced by factors of type and class of designation, intensity and location of the rally; 2. Road Section Network Performance Elements, which include the performance of road sections and intersections; 3. Access Element, with respect to the number and location of access; 4. Parking Space Elements; 5. Environmental Elements, especially with regard to the impact of pollution and noise (Djamal1993):

The objectives of analysis of traffic impacts are: (1) assessment and formulation of traffic impacts caused by new development areas on the surrounding road network / external road network, especially road sections that form the main network system; (2) Efforts to synchronize government policies in relation to the provision of road infrastructure, especially the plan to improve road infrastructure and intersections around major developments which are expected to reduce conflicts, congestion and traffic barriers; (3) provision of solutions that can minimize traffic congestion caused by the impact of new development, as well as the preparation of indicative proposals for additional facilities needed to reduce the impact caused by traffic generated by the new development, including efforts to maintain the level of service of existing road network system infrastructure; (4) preparation of recommendations for the regulation of internal road network systems, access points to and from the land built, the need for parking space facilities and the provision of as much as possible for ease of access to the land to be built (Dikun and Arif 1993).

III. RESEARCH METHODS

3.1 Time and Location

The research location is KM 8 Sempulang Village or Kuaro - Tanah Grogot Street (Section Name: Tanah Grogot City Boundary - Lolo; Section No. : 002; Status : National Road; Function: Primary Artery), Janju Village, Tanah Grogot sub-District, Paser Regency, East Kalimantan Province, with location coordinates 1°51'19.6"S 116°10'00.6"E. This study was conducted from August to October 2022.

3.2 Research Activities

The research activities carried out are as follows: preparation, literature review, observation / survey, data collection, data analysis, reporting. Research flow chart presented in **Figure 1.**

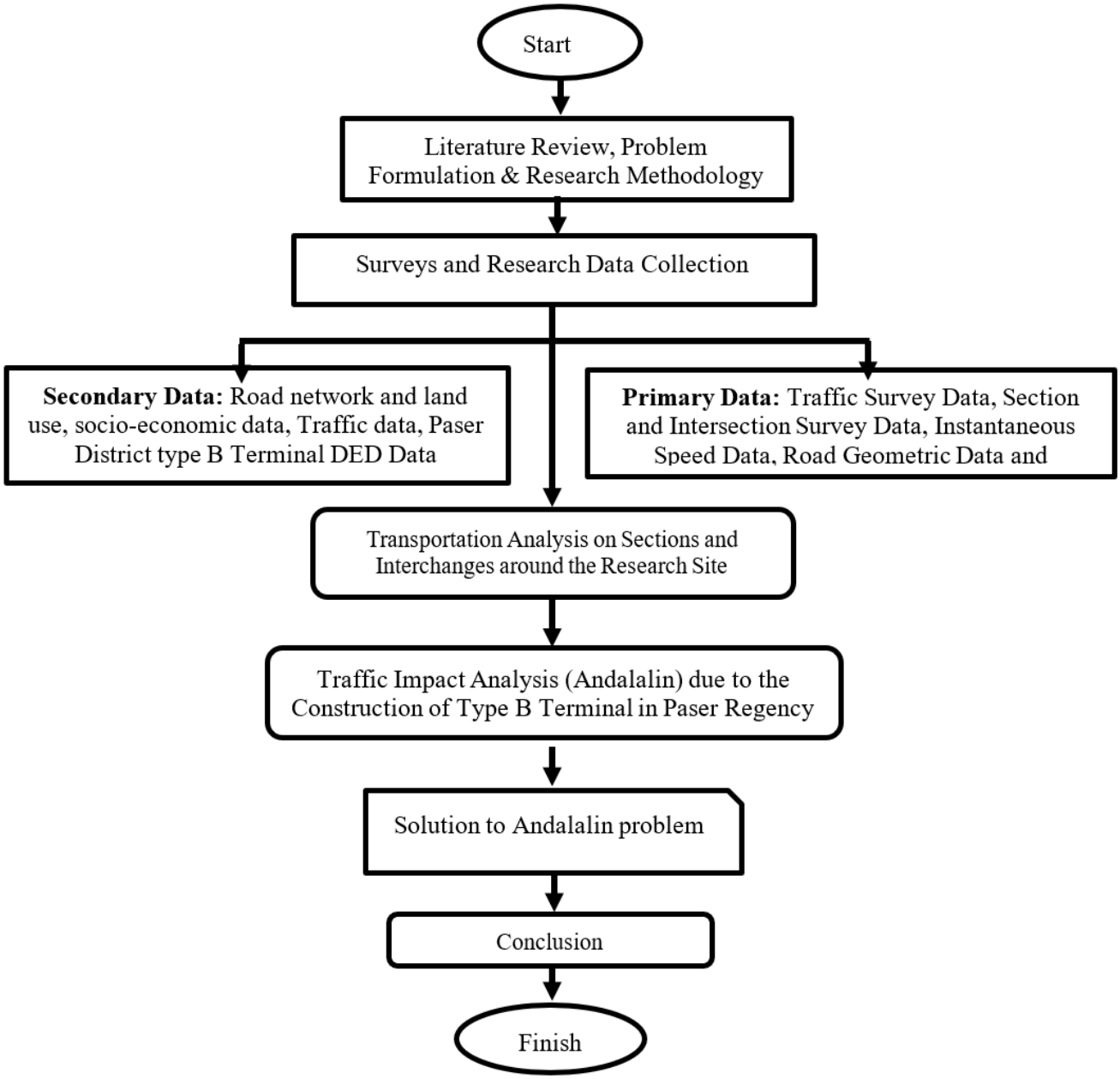

FIGURE 1: Research Flowchart

3.3 Data Analysis

The analysis method used is Traffic Impact Analysis Due to the Construction of type B Passenger Terminal in Paser Regency using the 1997 MKJI Method and 4-Stage Modeling (Tamin Ofyar, Z. 2000).

IV. RESULTS AND DISCUSSION

4.1 Road Network Inventory

The results of the inventory of road networks within the study area as presented in Table 1 below:

TABLE 1
RESULTS OF THE ROAD NETWORK INVENTORY OF THE RESEARCH LOCATION

No	Road Section Name	Types of Road Sections	Wide Effectivity f (m) (Wc)	Number of Lanes	Width per lane (m)	Median Width of the Road (m)	Effective Shoulder Width (Wc) (m)		Side Obstacles
							Left	Right	
1	Kuaro - Tanah Grogot Street (1)	2/2UD	10	2	5	-	1	1	Low
2	Kuaro - Tanah Grogot Street (2)	2/2UD	10	2	5	-	2	2	Low
3	Kuaro - Tanah Grogot Street (3)	4/2D	14	4	3.5	1.5	0.2	0.2	Low
4	Kuaro - Tanah Grogot Street (4)	4/2D	14	4	3.5	1.5	2	2	Low
5	Kuaro - Tanah Grogot Street (5)	2/2UD	5.5	2	2.75	-	3	3	Low
6	Kuaro - Tanah Grogot Street (6)	4/2D	14	4	3.5	1.5	0.2	0.2	Low
7	Pelopor Street	2/2UD	6	2	3	-	-	-	Low
8	Trans. Janju Street	2/2UD	7	2	3.5	-	1.5	1.5	Low

Source: Field Survey Results, 2022

4.2 Road Section Traffic Volume

In accordance with PM 96 of 2015, from the data from the traffic survey results, the highest volume of flow will be selected, which is referred to as the Design Hourly Volume (VJP). Based on the data in Table 1 above, it is obtained that the VJP for each road section within the scope of the study area is presented in **Table 2** below:

TABLE 2
PEAK HOUR VOLUME (VJP) EXISTING CONDITIONS

No	Street Names and Traffic Directions	Type	Peak Hour Volume (smp/jam)		
			Morning	Noon	Afternoon
1	Kuaro - Tanah Grogot Street (1)	2/2UD	977	1026	1216
a	direction of east		549	560	637
b	direction of west		428	466	579
2	Kuaro - Tanah Grogot Street (2)	2/2UD	944	953	1131
a	direction of east		550	539	615
b	direction of west		395	414	516
3	Kuaro - Tanah Grogot Street (3)	4/2D	944	953	1131
a	direction of east		550	539	615
b	direction of west		395	414	516
4	Kuaro - Tanah Grogot Street (4)	4/2D	944	953	1131
a	direction of east		550	539	615
b	direction of west		395	414	516
5	Kuaro - Tanah Grogot Street (5)	2/2UD	944	953	1131
a	direction of south		550	539	615
b	direction of north		395	414	516
6	Kuaro - Tanah Grogot Street (6)	4/2D	856	898	1118
a	direction of north		364	423	499
b	direction of south		492	485	619
7	Pelopor Street	2/2UD	318	318	250
a	direction of west		146	133	135
b	direction of east		172	237	238
8	Trans. Janju Street	2/2UD	215	237	238
a	direction of north		115	237	238
b	direction of south		99	109	111

Source: Results of Survey Data Compilation (2022)

4.3 Free Current Speed and Road Section Capacity

The road section studied is an urban road so the formula used from MKJI 1997 is the formula for urban roads. Based on these guidelines, the urban/semi-urban road segment in question is a road that has a permanent and continuous development along all or almost all of the road, at least on one side of the road. The results of the analysis of the speed of free current under existing conditions are presented in **Table 3.**

TABLE 3
FREE CURRENT SPEED EXISTING CONDITIONS

No	Road Section Name	Type	FV_0	FV_w	$FV^0 + FV_w$	FFV_{sf}	FFV_{cs}	FV
1	Kuaro - Tanah Grogot Street (1)	2/2UD	42	6	48	0.98	0.9	42.34
2	Kuaro - Tanah Grogot Street (2)	2/2UD	42	6	48	1	0.9	43.2
3	Kuaro - Tanah Grogot Street (3) direction of east	1-Feb	55	0	55	0.98	0.9	48.51
4	Kuaro - Tanah Grogot Street (3) direction of west	1-Feb	55	0	55	1.02	0.9	50.49
5	Kuaro - Tanah Grogot Street (4) direction of east	1-Feb	55	0	55	1.03	0.9	50.99
6	Kuaro - Tanah Grogot Street (4) direction of west	1-Feb	55	0	55	1.03	0.9	50.99
7	Kuaro - Tanah Grogot Street (5)	2/2UD	42	-4	38	1	0.9	34.2
8	Kuaro - Tanah Grogot Street (6) direction of north	1-Feb	55	0	55	0.98	0.9	48.51
9	Kuaro - Tanah Grogot Street (6) direction of south	1-Feb	55	0	55	0.98	0.9	48.51
10	Pelopor Street	2/2UD	42	-3	39	0.96	0.9	33.7
11	Trans. Janju Street	2/2UD	42	0	42	0.99	0.9	37.42

Source: Analysis Results, 2022

Based on pda data from Table 3 above, the average condition of free current speed (FV) on road sections around the study site was obtained, namely there were 11 road sections based on inventory results in the field and had a speed of 44.44 Km / Hour. Furthermore, the results of the analysis of the capacity of road sections (C) are the largest volume that can be served by a road section are presented in **Table 4** below:

TABLE 4
CAPACITY OF ROAD SECTIONS EXISTING CONDITIONS

No	Road Section Name	Type	C_0	Fc_w	FCsp	FC_{sf}	FC_{cs}	C
1	Kuaro - Tanah Grogot street (1)	2/2UD	2900	1.29	1	0.94	0.86	3024
2	Kuaro - Tanah Grogot street (2)	2/2UD	2900	1.29	1	1	0.86	3217
3	Kuaro - Tanah Grogot street (3) direction of east	1-Feb	3300	1	1	0.94	0.86	2668
4	Kuaro - Tanah Grogot street (3) direction of west	1-Feb	3300	1	1	1	0.86	2838
5	Kuaro - Tanah Grogot street (4) direction of east	1-Feb	3300	1	1	1.02	0.86	2895
6	Kuaro - Tanah Grogot street (4) direction of west	1-Feb	3300	1	1	1.02	0.86	2895
7	Kuaro - Tanah Grogot street (5)	2/2UD	2900	0.72	1	1	0.86	1783
8	Kuaro - Tanah Grogot street (6) direction of north	1-Feb	3300	1	1	0.94	0.86	2668
9	Kuaro - Tanah Grogot street (6) direction of south	1-Feb	3300	1	1	1.02	0.86	2895
10	Pelopor street	2/2UD	2900	0.87	1	0.92	0.86	1996
11	Trans. Janju street	2/2UD	2900	1	1	1	0.86	2494

Source: Analysis Results, 2022

Based on the results of the analysis of field data, the results of the capacity calculation of 11 sections around the study site showed the average value of the smallest road capacity on the Kuaro-Tanah Grogot road section (5) with a capacity of 1,783 SMP / Hour, and the largest capacity on the Jl. Kuaro-Tanah Grogot (2) road section of 3,217 SPM / Hour. The results of the calculation of the level of road service (LOS) are presented in **Table 5** below:

TABLE 5
PERFORMANCE OF EXISTING CONDITION ROAD SECTIONS

No	Road Section Name	Type	C	Q	Q/C	LOS (1)	V	LOS (2)
1	Kuaro - Tanah Grogot street (1)	2/2UD	3024	1216	0.4	B	26.78	C
2	Kuaro - Tanah Grogot street (2)	2/2UD	3217	1131	0.35	B	27.75	C
3	Kuaro - Tanah Grogot street (3) direction of east	1-Feb	2668	615	0.23	B	32.27	C
4	Kuaro - Tanah Grogot street (3) direction of west	1-Feb	2838	516	0.18	A	34.06	C
5	Kuaro - Tanah Grogot street (4) direction of east	1-Feb	2895	615	0.21	B	34.11	C
6	Kuaro - Tanah Grogot street (4) direction of west	1-Feb	2895	516	0.18	A	34.39	C
7	Kuaro - Tanah Grogot Street (5)	2/2UD	1783	1131	0.63	C	20.02	C
8	Kuaro - Tanah Grogot street (6) direction of north	1-Feb	2668	499	0.19	A	32.63	C
9	Kuaro - Tanah Grogot street (6) direction of south	1-Feb	2895	619	0.21	B	32.45	C
10	Pelopor street	2/2UD	1996	250	0.13	A	23.04	C
11	Trans. Janju street	2/2UD	2494	238	0.1	A	25.79	C

Source: Analysis Results, 2022

Based on the data in Table 5, it is obtained that based on the Degree of Saturation (DS) or Volume per Road Section Capacity (V/C Ratio) obtained:

1. **LOS(1) A**, which means that the free flow with low traffic volume and the driver can maintain his desired speed without or with little delay;
2. **LOS(1) B**, which means that the flow is stable with moderate traffic volume and the driver still has enough freedom to choose his speed and the path of the road he wants;
3. **LOS(1) C**, which means that the current is stable but the movement of the vehicle is controlled by a higher volume of traffic as well as the driver is restricted in choosing the speed, changing lanes or ahead of;

4.4 Interchange Performance

There are 2 (two) intersections that are included in the scope of this study, the intersections are as follows:

1. Simpang 1 : Simpang JANJU : Jl. Kuaro – Tanah Grogot – Jl. Trans Janju (Simpang Tidak Bersinyal); and
2. Interchange 2: PELOPOR Interchange: Jl. Kuaro – Tanah Grogot – Jl. Pelopor (Uncited Interchange).

The results of calculating the performance of existing intersections from Simpang Janju and Simpang Pioneer adjacent to the research location are presented in **Table 6** and **Table 7** below:

TABLE 6
SIMPANG 1 PERFORMANCE (SIMPANG JANJU)

Road flow	Degree of Saturation	Travel Delays					Queuing Opportunities	Service Level Interchange
		Traffic	Main Street	Minor Roads	Geometric Roads	Interchange		
Q	DS	DT_1	DT_{MA}	DT_{MI}	DG	D	QP%	LOS
1274	**0.55**	**5.61**	**4.19**	**19.27**	**3.79**	**9.4**	**12.95-28.17**	**B**

Source: Analysis Results, 2022

TABLE 7
SIMPANG 2 PERFORMANCE (SIMPANG PELOPOR)

Road flow	Degree of Saturation	Travel Delays					Queuing Opportunities	Service Level Interchange
		Traffic	Main Street	Minor Roads	Geometric Roads	Interchange		
Q	DS	DT_1	DT_{MA}	DT_{MI}	DG	D	QP%	LOS
1256	**0.37**	**3.78**	**2.82**	**11.62**	**3.82**	**7.6**	**6.7 - 17.13**	**B**

Source: Analysis Results, 2022

4.5 Trip Generation Analysis

Based on the results of the 2022 (existing) bounce and pull analysis, it was obtained based on the peak hour volume from the traffic survey data in **Table 8** as follows:

TABLE 8
ANALYSIS OF AWAKENING AND PULLING OF TRAVEL IN EXISTING CONDITIONS

Zone	Coverage Area	Rise (smp/hour)	Pull (smp/hour)	Calibration Results	
				Rise (smp/Hour)	Pull (smp/Hour)
1	Direction from/to Mako Brimob	135	114	137	113
2	Direction from/to Mtanah Grogot	499	619	504	614
3	Direction from/to Trans Janju	127	111	128	110
4	Direction from/to Kuaro	637	579	643	574
5	Terminal Location Plan	0	0	0	0
TOTAL		1398	1424	1411	1411

Source: Analysis Results, 2022

In the analysis of the Rise and pull in the planned year, it is predicted that there will be an increase (addition) of travel as a result of population growth and other factors affecting the number of trips. In the analysis of the rise and pull in this plan year, it is assumed that it will increase by 2 percent each year. This is based on the Population Growth Rate in Paser Regency (Th. 2010 – 2020) of ± 1.75% per year, and the Motor Vehicle Growth Rate in Paser Regency (Th. 2015 – 2020) of ± 1.02% per year, as well as the Motor Vehicle Growth Rate in East Kalimantan Province (Th. 2015 – 2020) of ± 1.06% per year.

Based on the results of the analysis, it can be predicted that the rise and pull of travel as a result of the mobility of operational equipment of construction / project vehicles and the mobility of construction workers / projects as presented in **Table 9** below:

TABLE 9
PREDICTION OF ADDITIONAL RISE AND PULL OF CONSTRUCTION PERIOD TRAVEL

No	Vehicle Type	Vehicle Entry			Vehicle Exit		
		Sum	EMP	Volume (smp/hour)	Sum	EMP	Volume (smp/hour)
1	Construction Vehicles						
	a. Mixer Truck	2	2	4	2	2	4
	b. Big Trucks	2	1.3	3	2	1.3	3
	c. Medium Trucks	4	1.2	5	4	1.2	5
	d. Pick-up Cars	4	1	4	4	1	4
2	Construction Worker Vehicles						
	a. Vehicles	9	1	9	2	1	2
	b. motorbike	37	0.4	15	8	0.4	4
SUM		58		40	20		22

Source: Analysis Results, 2022

In the analysis of the rise and pull during the operational period is based on data on the number of Vehicles and Passengers In and Out of the Existing Terminal (Tepi Batang): Year 2027 (construction) = 19 smp / hour and In 2033 predicted to be = 24 smp / hour.

4.6 Road Section Performance Simulation

The results of simulated ride and pull of travel, travel distribution (Matrix OD), as well as the performance of road sections consisting of Degree of Saturation or V/C Ratio, Speed (V), and Level of Service in 2027 (Construction) are presented in the **Table 10, 11 dan 12**:

TABLE 10
THE RISE AND PULL OF THE YEAR JOURNEY 2027 (CONSTRUCTION)

Zone	Coverage Area	Rise (smp/hour)	Pull (smp/hour)	Calibration Results	
				Rise (smp/Jam)	Pull (smp/Jam)
1	Direction from/to Mako Brimob	149	126	151	125
2	Direction from/to Mtanah Grogot	551	683	556	677
3	Direction from/to Trans Janju	140	123	141	122
4	Direction from/to Kuaro	703	639	709	633
5	Terminal Location Plan	19	19	19	19
TOTAL		1563	1591	1577	1577

Source: Analysis Results, 2022

TABLE 11
OD MATRIX IN 2027 (CONSTRUCTION)

O/D	1	2	3	4	5	0i	Oi	Ei	Ai
1	0	92	3	55	1	151	151	1	0.00128
2	71	0	21	458	6	556	556	1	0.002899
3	3	28	0	110	1	141	141	1	0.00104
4	51	549	98	0	11	709	709	1	0.004031
5	1	7	1	11	0	19	19	1	0.001024
dd	125	677	122	633	19	1577			
Dd	125	677	122	633	19		1577		
Ed	1	1	1	1	1			1	
Bd	0.52146	1.046976	0.393833	1.654322	0.397368				

Source: Analysis Results, 2022

TABLE 12
ROAD SECTION PERFORMANCE IN 2027 (CONSTRUCTION)

No	Road Section Name	Type	C	Q	Q/C	LOS (1)	V	LOS (2)
1	Kuaro - Tanah Grogot street (1)	2/2UD	3024	1343	0.44	B	26.44	C
2	Kuaro - Tanah Grogot street (2)	2/2UD	3217	3217	0.37	B	27.58	C
3	Kuaro - Tanah Grogot street (3) direction of east	1-Feb	2668	2668	0.24	B	32.18	C
4	Kuaro - Tanah Grogot street (3) direction of west	1-Feb	2838	2838	0.19	A	33.96	C
5	Kuaro - Tanah Grogot street (4) direction of east	1-Feb	2895	2895	0.22	B	34.01	C
6	Kuaro - Tanah Grogot street (4) direction of west	1-Feb	2895	2895	0.19	A	34.3	C
7	Kuaro - Tanah Grogot street (5)	2/2UD	1783	1783	0.66	C	19.79	C
8	Kuaro - Tanah Grogot street (6) direction of north	1-Feb	2668	2668	0.21	B	32.45	C
9	Kuaro - Tanah Grogot street (6) direction of south	1-Feb	2895	2895	0.23	B	32.27	C
10	Pelopor street	2/2UD	1996	1996	0.14	A	22.98	C
11	Trans. Janju street	2/2UD	2494	2494	0.11	A	25.72	C

Source: Analysis Results, 2022

Based on the simulation, during the construction period (2027) the construction of the Paser Type B Passenger Terminal, it can be seen that the performance of the road section within the scope of the study area, is still in good condition, which is indicated by the highest Level of Service (LOS) being in LOS C, which means that traffic flow is still stable with a moderate level of density.

4.7 Simulated Intersection Performance

The results of the simulation of interchange performance in 2027 (Construction Period), where in the year of the plan, the traffic flow at the intersection has increased due to traffic growth is presented in Table 13 and Table 14 below:

TABLE 13
INTERCHANGE PELOPOR 1 (SIMPANG JANJU) 2027 (CONSTRUCTION PERIOD)

Traffic flow	Degree of Saturation	Travel Delays					Queuing Opportunities	Simpang Service Level
		Traffic	Main Street	Minor stresst	Geometric Roads	Interchange		
Q	DS	DT_1	DT_{MA}	DT_{MI}	DG	D	QP%	LOS
1423	**0.62**	**6,36**	**4,74**	**22.27**	**3.83**	**10.19**	**16.03-33.55**	**B**

Source: Analysis Results, 2022

TABLE 14
INTERCHANGE PELOPOR 2 (SIMPANG PELOPOR) 2027 (CONSTRUCTION PERIOD)

Traffic flow	Degree of Saturation	Travel Delays					Queuing Opportunities	Simpang Service Level
		Traffic	Main Street	Minor stresst	Geometric Roads	Interchange		
Q	DS	DT_1	DT_{MA}	DT_{MI}	DG	D	QP%	LOS
1378	**0.4**	**4.08**	**3.05**	**12.67**	**3.83**	**7.91**	**7.58 - 18.75**	**B**

Source: Analysis Results, 2022

Based on the results of the analysis above, it is known that the Saturation Degree (DS) is 0.62 and the Delay is 10.19 seconds / smp, so it is included in the LOS B category which indicates that the condition of Simpang JANJU / Simpang 1 traffic flow is still stable and there are only a few obstacles. Likewise, intersection 2 resulting in a Saturation Degree (DS) value is 0.40 and the Delay is 7.91 seconds / smp, so it is included in the LOS B category, which indicates that the condition of Simpang PIONEER / Simpang 2 traffic flow is still stable and there are few obstacles.

V. CONCLUSIONS AND SUGGESTIONS

5.1 Conclusion

Based on the results of the analysis and discussion it can be concluded as follows:

1. Based on Law number 22 of 2009 article 99 paragraph 1 it states that "Every plan for the development of activity centers, settlements and infrastructure that will cause disturbances to security, safety, order and the smooth running of traffic and road transportation must be carried out a traffic impact analysis".
2. Based on Minister of Transportation Regulation No. 17 of 2021 it is stated that the construction of the type B terminal in Paser Regency is in the medium generation category.
3. The results on the performance of the sections and the performance of the intersections around the terminal construction site, do not show a significant level of traffic disturbance, meaning that it is only necessary to regulate the circulation of project vehicles carrying out activities in the field with recommendations from the results of the Andalanin assessment. This can be seen from the calculation of the existing LOS and LOS Construction results in the LOS C category and the intersection performance of the existing LOS B condition is the same as the calculation results during the construction period which shows the value of LOS B as well.

5.2 Suggestion

With an estimate of the impact of problems that will occur during the construction period, the steps for prevention or handling are as follows:

1. Closing the project area with a closed fence, so that construction activities are not visible from the outside, apart from for security purposes it can also avoid the attention of motorists or drivers due to slowing down the vehicle.
2. Mobilization of heavy equipment (such as: Machinery *Bored Pile*, *Hydraulic Static Pile Driver* (HSPD), *Tower Crane*, *Concrete Pump*, *Mobile Crane*, *Escavator*, dll), it is advisable to enter or go to the work location at night, with the escort of traffic officers;
3. Install road safety facilities in the project activity area.
4. Assign special officers to guide vehicles in and out, with standard equipment, namely brightly colored vests and traffic flashlights.
5. The transportation of project materials is carried out by covering the tarpaulin and tying it properly, so that the project material does not spill onto the road.
6. Provide a place to clean material vehicle tires in the project area.
7. Create a security post to monitor project activities and the surrounding environment.
8. Repairing roads around the construction site that were damaged due to the process of transporting materials (construction) during the construction process.
9. Install CCTV cameras at strategic project locations to monitor field activities for security both inside and outside the project.

Use a fixed road network to route land transport vehicles by coordinating with the authorized agency/officer in advance.

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