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Financial Feasibility Study of Binjai – Langsa (Pangkalan Brandan – Langsa Section) Toll Road Project

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ABSTRACT: This study evaluates the Financial Feasibility of the Pangkalan Brandan - Langsa Toll Road Section Project. The purpose of this study is to calculate the Net Present Value (NPV), Internal Rate of Return (IRR), Payback Period (PP), Discounted Payback Period, and Profitability Index (PI) for the Pangkalan Brandan - Langsa Toll Road Section Project. The study results show that this project has a positive Net Present Value (NPV) of Rp. 12,773,885,792,000, therefore it is financially feasible. The project also has an Internal Rate of Return (IRR) of 13.26% which is higher than the discount rate of 9.22%, therefore it is financially feasible, and a Payback Period (PP) of 16.4 years and a Discounted Payback Period of 27.7 years which are still within the 50-year concession period, therefore it is financially feasible. Additionally, this project has a Profitability Index (PI) of 2.5190 which is higher than 1, making it financially feasible. In conclusion, the Binjai - Langsa Toll Road Project (Pangkalan Brandan - Langsa Section) is financially feasible. The recommendation given is timely project execution to avoid cost overruns.

KEYWORDS: Discounted Payback Period, Financial Feasibility, Internal Rate of Return (IRR), Pangkalan Brandan - Langsa Toll Road Section Project, Net Present Value (NPV), Payback Period (PP), Profitability Index (PI).

INTRODUCTION

To accelerate regional development on the island of Sumatra and to support national economic growth, the Government issued Presidential Regulation No. 100 of 2014 concerning the acceleration of toll road construction in Sumatra. Through this Presidential Regulation, PT Hutama Karya (Persero) is tasked with carrying out the construction and operation of the Trans Sumatra Toll Road. This assignment includes the scope of funding, technical planning, construction execution, operation, and maintenance. Until now, the Presidential Regulation related to the Trans Sumatra Toll Road has been changed 3 times. In Presidential Regulation No. 117 of 2015 on the first amendment of Presidential Regulation No. 100 of 2014, there is an addition of 20 Toll Road Sections so that the total becomes 24 Toll Road Sections, one of which is the Binjai – Langsa Toll Road. Along the way, there was another change in stages caused by obstacles in the land acquisition and investment funding process contained in Presidential Regulation No. 131 of 2022 on the second amendment of Presidential Regulation No. 100 of 2014 where the Binjai – Langsa Toll Road became 2 stages, namely the Binjai – Pangkalan Brandan Section in Phase I and the Pangkalan Brandan – Langsa Section included in Phase III. Furthermore, in Presidential Regulation No. 42 of 2024 on the third amendment to Presidential Regulation No. 100 of 2014 which is the third amendment to Presidential Regulation No. 100 of 2014, the Trans Sumatra Toll Road section still has 24 toll road sections. However, the Binjai – Langsa Toll Road (Pangkalan Brandan – Langsa Section) which was previously constructed as Phase III, changed to Phase II.

RESEARCH METHODS

According to Umar (2007), the research design is a structured work plan that relates variables comprehensively so that the results of the research answer the research questions. The plan in question is a series of activities for the implementation of research, starting from making hypotheses and their implications operationally to the final analysis. In this case, the study used a case study research design because it took a case study from the Pangkalan Brandan - Langsa Toll Road Section Project. According to Creswell (2010), a case study is a research strategy that researchers can use to closely investigate a program, event, activity, process, or group of individuals. According to Cooper & Schindler (2014), data can be divided into 2 (two) classifications, namely primary data, and secondary data. Primary Data is data obtained and collected directly, the data obtained is still raw and has not

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been processed. Secondary data is data that has at least one level of interpretation of the data, usually secondary data obtained through journals, articles, or reports. In this study, only secondary data was collected through internal data owned by PT. Hutama Karya (Persero) and data belonging to consultants in collaboration with PT. Hutama Karya (Persero). The results of this study are presented with narratives and the results of financial assessment analysis as supporting quantitative data. To reinforce and clarify the results of data analysis, researchers use illustrations in the form of charts, tables, and figures. A conceptual framework is needed to answer the research question. The conceptual framework for this study is as follows:

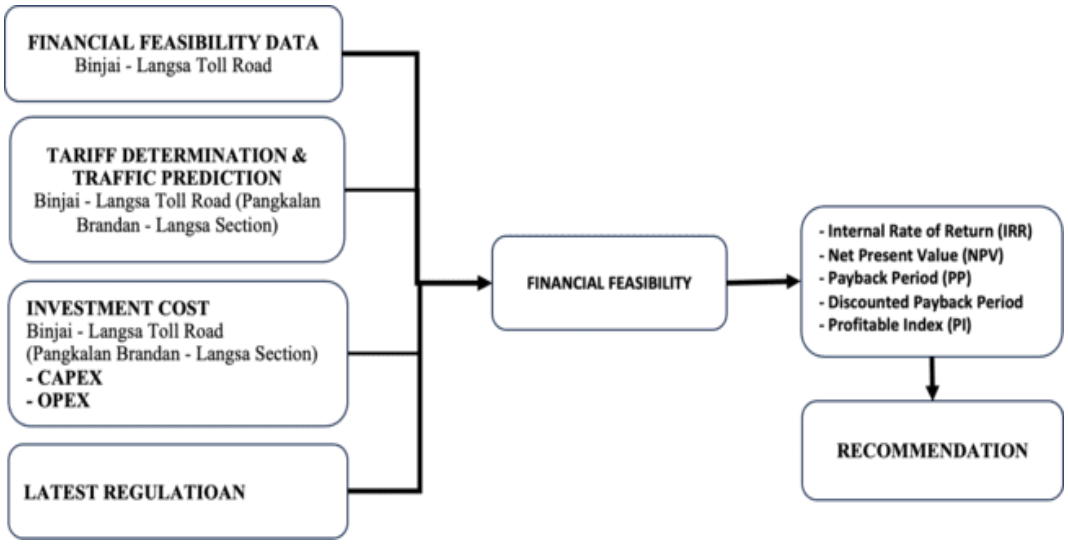

Figure 1: Conceptual Framework
Source: Author

RESULT & DISCUSSION

A. Data to Calculate Financial Feasibility

1) Toll Rate Revenue Analysis

Based on the Decree of the Minister of Public Works and Public Housing No. 82/KPTS/M/2022 of 2022 regarding the determination of toll rates for the Binjai - Langsa Section 1 (Binjai - Stabat) Toll Road, the toll rate in 2022 for class I is Rp. 1,210 per km, with a road length of 12.3 km and an assumed tariff increase of 12% per 2 years as Table 1 below.

Table 1: Toll Tariff and Toll Rate by Vehicle Type

Class	Toll Tariff in 2022 (Binjai - Stabat) (Rp)	Toll Rate 2022 (Rp./km)	Increse in Rate	Vehicle Type
Class I	15,000	1,210	-	Class I (Car, Jeep, Pick up, Small Truck, Buss)
Class II	22,500	1,820	1.5x Class I	Class II (Truck with 2 axles)
Class III	22,500	1,820	1.5x Class I	Class III (Truck with 3 axles)
Class IV	30,000	2,430	2.0x Class I	Class IV (Truck with 4 axles)
Class V	30,000	2,430	2.0x Class I	Class V (Truck with 5 axles)

Source: (Minister of Public Works and Public Housing, 2022)

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So, the assumption of the Toll Rate used for the Pangkalan Brandan - Langsa Toll Road is Rp. 1,210 per km for class I which will apply in 2027 (the beginning of operation) and the assumption of a tariff increase of 12% per 2 years can be illustrated in Figure 2 below:

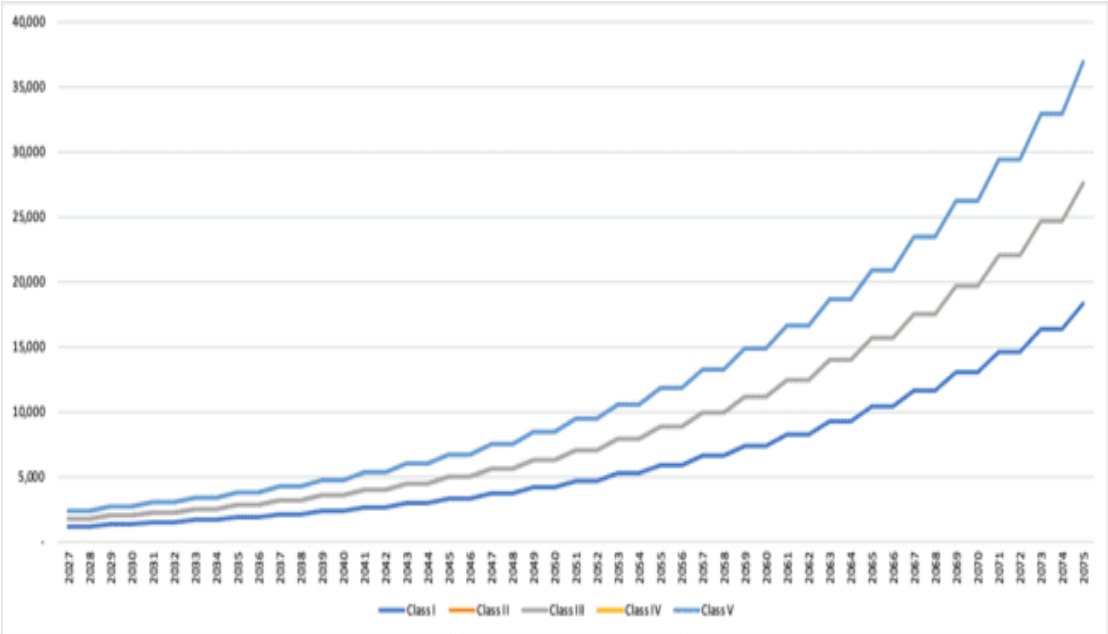

Figure 2: Pangkalan Brandan – Langsa Toll Road Rates Growth
Source: Author

Calculating the Annual Daily Average Traffic Growth (AADT) per vehicle Class can be done based on the weighted traffic volume prediction data from the consultant's study. The Annual Daily Average Traffic Growth (AADT) per vehicle Class is shown in Figure 3 below.

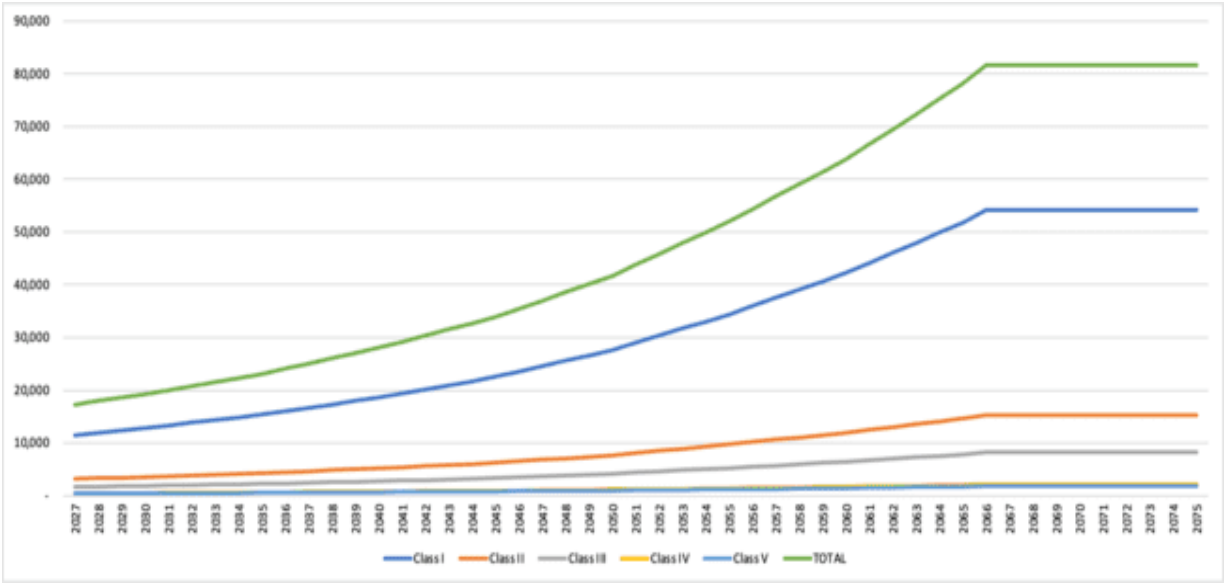

Figure 3: AADT Growth in the Pangkalan Brandan – Langsa Segment
Source: Author

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Based on the calculation of toll rate and average daily traffic then the growth of toll road revenue until the 50th year can be shown in Figure 4 below.

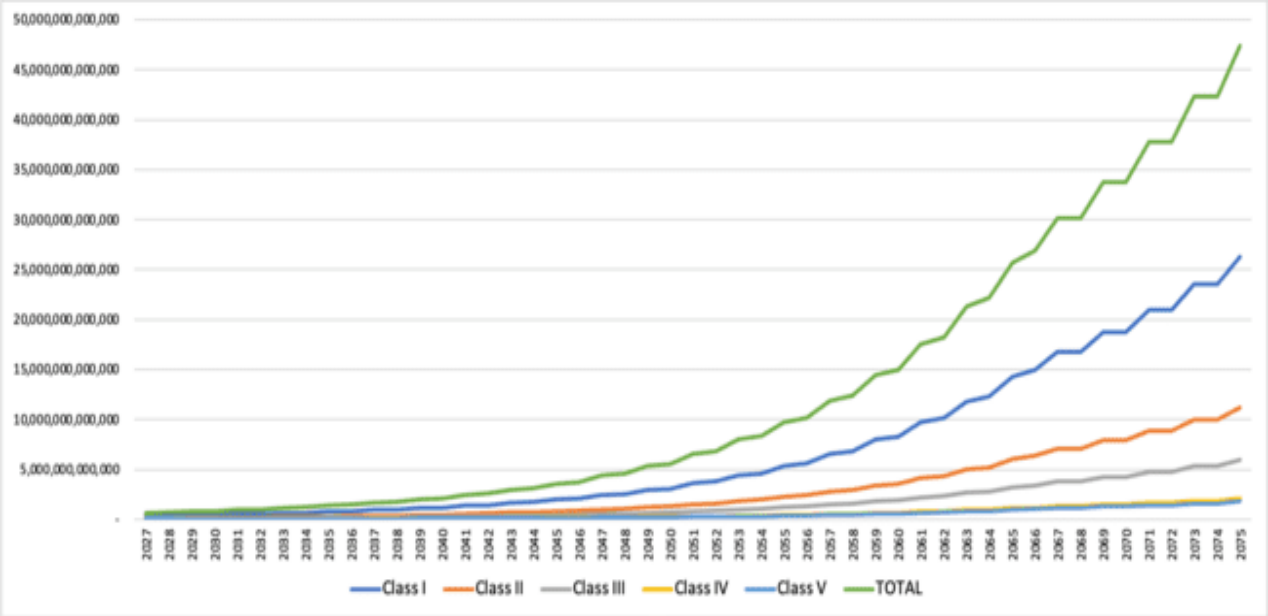

Figure 4: Pangkalan Brandan – Langsa Toll Road Revenue Growth
Source: Author

2) Data

In calculating the financial feasibility of the Pangkalan Brandan - Langsa Toll Road, there are several data to be taken from the consultant study for Binjai - Langsa Section, as follows:

Cost of Debt before Tax	:	11%
Debt to Equity Ratio (DER)	:	70% : 30%
Tol Increased Rate	:	12% for every 2 years
Toll Length Pangkalan Brandan – Langsa	:	5 Km
Prediction of traffic volume for the segment:		
Langsa - Kuala Simpang	:	Year 2025 – 2060
Kuala Simpang - Pangkalan Brandan	:	Year 2025 – 2060
Construction Cost	:	Rp. 12,624,712,993,143
Operational & Maintenance Cost (in 2027)	:	Rp. 623,205,988,331.71
Inflation rate	:	6% per year
Land Acquisition Expense by Government		

3) Investment Cost

In determining the investment value, the estimated value of toll road construction costs for the Pangkalan Brandan - Langsa section uses the value of toll road construction costs on the Binjai - Langsa Toll Road as a result of the consultant's study. Based on the comparison of road length and construction cost data for the Binjai – Langsa Toll Road Section above and new tax regulations, the Investment Cost Component for the Pangkalan Brandan – Langsa Toll Road Section is shown in Table 2 below.

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Table 2: Investment Cost Component

	Section	Binjai - Langsa		Pangkalan Brandan - Langsa	
1	Construction Cost	Length: 129.9 Km	**12,624,712,993,148**	Length:72.5 Km	**7,040,316,714,951**
2	Design Cost	1% of construction cost	126,247,129,931	1% of construction cost	70,403,167,150
3	Supervision Cost	3% of construction cost	378,741,389,794	3% of construction cost	211,209,501,449
4	Toll Equipment Cost	2% of construction cost	252,494,259,863	2% of construction cost	140,806,334,299
5	Escalation Cost	7% of construction cost	883,729,909,520	7% of construction cost	492,822,170,047
	Sub total		**14,265,925,682,258**		**7,955,557,887,895**
6	VAT	10% of sub total	1,426,592,568,226	11% of sub total	875,111,367,668
	Sub total		**15,692,518,250,483**		**8,830,669,255,563**
7	Overhead Cost	2,5% of contruction cost	315,617,824,829	2,5% of contruction cost	176,007,917,874
	Sub total		**16,008,136,075,312**		**9,006,677,173,437**
8	IDC	9% of loan portion	1,008,512,572,745	9% of loan portion	567,420,661,927
9	Financial cost	0,25% of loan portion	28,014,238,132	0,25% of loan portion	15,761,685,054
	TOTAL		**17,044,662,886,189**		**9,589,859,520,417**

Source: Author

4) Operational and Maintenance Cost

In determining the cost of operation and maintenance using his study, the consultant for the Binjai – Langsa Toll Road Section for the cost of 2027 - 2060 converted the length of the road handling the Pangkalan Brandan - Langsa Toll Road Section. For the years 2061 – 2075, it is calculated by the growth rate based on consultant data for the inflation rate every year. Growth in Operation and Maintenance Costs of Pangkalan Brandan – Langsa Toll Road Section as Figure 5 below:

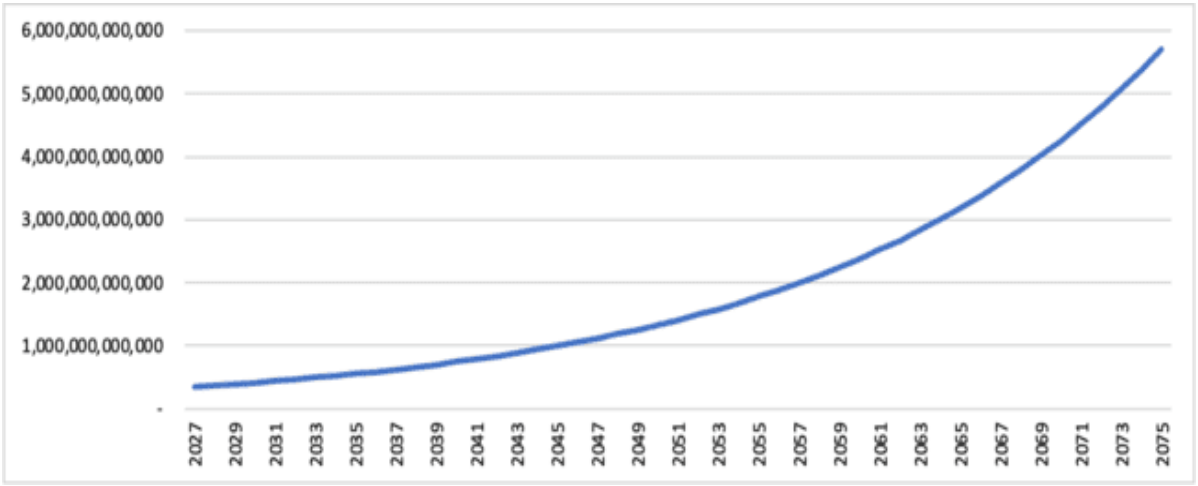

Figure 5: Operational and Maintenance Expense Growth
Source: Author

5) Discount Rate Using WACC

Before calculating the Weighted Average Cost of Capital (WACC), it is necessary to calculate the after-tax cost of debt where the amount of the Cost of Debt before Tax is obtained from the data of the consultant study as shown in Table 3 below.

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Table 3: After Tax Cost of Debt

No	Description	Symbol	Formula / Remark	Value/Result
1	Cost of Debt before tax	rd	Company Policy (Consultant)	11.00%
2	Corporate Tax Rate	T	Source : https://www.online-pajak.com/tentang-efiling/tarif-pph-badan	22.00%
3	after tax cost of debt		$after\ tax\ cost\ of\ debt = rd\ x\ (1-T)$	8.58%

Source: Author

In addition to the after-tax cost of debt, to calculate WACC, the amount of Cost of Equity (re) must also be calculated by previously calculating the Stock's Beta Coefficient (β), Market return (rm), and Risk-free Rate (rf). The calculation of Beta Value (β) uses the same business approach as Levered Beta data obtained from Perfindo Beta Stock data November 30, 2023, edition (Source: https://www.pefindo.com/beta-stock/?filter=2023-11-30) and Third Quarter 2023 data from the company's Financial Statement obtained from the Indonesia Stock Exchange (Source: https://www.idx.co.id/id/perusahaan-tercatat/laporan-keuangan-dan-tahunan/), then we get the calculation as shown in Table 4 below.

Table 4: Adjustment Beta (β) Calculation

Institution	Ticker Symbol	Levered Beta	Debt (mil)	Equity (mil)	D/E Ratio	Tax Rate
Jasa Marga	JSMR	0.876	86,871	38,029	2.3	22%
Citra Marga Nusaphala Persada	CMNP	0.552	9,011	12,925	0.7	
Waskita Karya	WSKT	2.002	84,108	12,431	6.8	
Wijaya Karya	WIKA	1.782	55,679	10,972	5.1	
Nusantara Infrastructure	META	1.129	7,802	3,302	2.4	
Adhi Karya	ADHI	2.327	30,436	8,983	3.4	
Pembangunan Perumahan	PTPP	2.151	44,220	15,098	2.9	
Average		**1.546**			**3.4**	

Beta Unleveraged (Arithmatic)	0.427

$$\frac{Leverage\ Beta}{(1+(1-Tax)\times Laverage)}$$

Beta Re-Leveraged	
Levegare (D/E) Project	2.333
Beta Leverage (Arithmatic)	**1.204**

$$Unlevere\ Beta\times(1+(1-Tax)\times Laverage)$$

Source: Author

To calculate the Market Return (rm) and Risk-free Rate (rf) from the graph of the Implied Market-risk-premium (IMRP) for Indonesia (Source: http://www.market-risk-premia.com/id.html), it can be seen that the Market Return (rm) for December 31, 2023 is 10.00% and the Risk-free Rate (rf) for December 31, 2023 is 6.49%.
After obtaining the amount of the Stock's Beta Coefficient (β), Market Return (rm), and Risk-free Rate (rf), then the amount of the Cost of Equity (re) can be calculated as shown in Table 5 below.

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Table 5: Cost of Equity

No	Description	Symbol	Formula / Remark	Value/Result
1	Risk free rate	rf	Soruce : http://www.market-risk-premia.com/id.html	6.49%
2	Beta	β	See Table Beta (Table 4 - 11)	1.204
3	Market Return	rm	Soruce : http://www.market-risk-premia.com/id.html	10.00%
4	Cost of Equity	re = rs	$re = rf + \beta \times (rm - rf)$	10.72%

Source: Author

Because PT. Hutama Karya (Persero) is not a public company, so Beta (β) is a private company, whereas Beta is a re-leveraged Beta (β) as shown in Table 4 above. The calculation of the Weighted Average Cost of Capital (WACC) for the Pangkalan Brandan – Langsa Toll Road Section can be seen in Table 6 below.

Table 6: Weighted Average Cost of Capital (WACC)

No	Description	Symbol	Formula / Remark	Value/Result
1	Total Investment (in Billion Rupiah)	V		9,590
2	Equity Portion (in Billion Rupiah)	E	30% * V	2,877
3	Debt Portion (in Billion Rupiah)	D	70% * V	6,713
4	Percentage of Weight of Debt Component	wd	$wd = \frac{D}{V}$	0.70
5	Percentage of Weight of Common Equity Components	wc	$wc = \frac{E}{V}$	0.30
6	Weighted Cost of Capital	WACC	$WACC = wd\ x\ rd\ x\ (1-T) + wp\ x\ rp + wc\ x\ rs$	9.22%

Source: Author

B. Financial Feasibility Calculation

The Financial Feasibility Calculations are Internal Rate of Return (IRR), Net Present Value (NPV), Payback Period (PP), Discounted Payback Period, and Profitability Index (PI) Financial Feasibility Calculation is presented in Table 7 below. From the calculations shown in Table 7, the Internal Rate of Return (IRR) was obtained at 13.26%, the NPV value is Rp. 12,773,885,792,000, the Payback Period (PP) was 16.4 years, the Discounted Payback Period was 27.7 years, and the Profitability Index (PI) value was 2.5190.

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Table 7: Financial Analysis

(in thousands of rupiah)

Years	1 2025	2 2026	3 2027	4 2028	5 2029	6 2030	7 2031	8 2032	9 2033	10 2034	11 2035
Total Revenue	-	-	662,276,808	686,539,810	796,099,150	823,273,713	959,441,418	996,816,278	1,158,294,074	1,200,153,916	1,391,055,410
Total Cost	(4,794,929,760)	(4,794,929,760)	(347,538,003)	(368,390,283)	(390,493,700)	(413,923,322)	(438,758,721)	(465,084,244)	(492,989,299)	(522,568,657)	(553,922,776)
Capital Expenditure	(4,794,929,760)	(4,794,929,760)	-	-	-	-	-	-	-	-	-
Operational & Maintenance	-	-	(347,538,003)	(368,390,283)	(390,493,700)	(413,923,322)	(438,758,721)	(465,084,244)	(492,989,299)	(522,568,657)	(553,922,776)
Cash Flow (CF)	(4,794,929,760)	(4,794,929,760)	314,738,805	318,149,528	405,605,451	409,350,391	520,682,697	531,732,033	665,304,775	677,585,260	837,132,634
Cummulative CF	(4,794,929,760)	(9,589,859,520)	(9,275,120,715)	(8,956,971,187)	(8,551,365,737)	(8,142,015,346)	(7,621,332,649)	(7,089,600,615)	(6,424,295,840)	(5,746,710,581)	(4,909,577,947)
Discount Factor	0.91557	0.83827	0.76750	0.70270	0.64337	0.58906	0.53932	0.49379	0.45210	0.41393	0.37898
Present Value (PV)	(4,390,106,587)	(4,019,461,558)	241,562,067	223,564,345	260,956,343	241,130,474	280,816,647	262,564,099	300,784,861	280,473,671	317,259,939
Cummulative PV	(4,390,106,587)	(8,409,568,145)	(8,168,006,079)	(7,944,441,733)	(7,683,485,391)	(7,442,354,917)	(7,161,538,270)	(6,898,974,171)	(6,598,189,309)	(6,317,715,638)	(6,000,455,699)
Payback Period											
Years	1	2	3	4	5	6	7	8	9	10	11
Month	-	-	-	-	-	-	-	-	-	-	-
Discounted Payback Period											
Years	1	2	3	4	5	6	7	8	9	10	11
Month	-	-	-	-	-	-	-	-	-	-	-

(in thousands of rupiah)

Years	12 2036	13 2037	14 2038	15 2039	16 2040	17 2041	18 2042	19 2043	20 2044	21 2045	22 2046
Total Revenue	1,450,390,480	1,690,892,615	1,757,347,892	2,042,659,551	2,117,089,462	2,469,575,004	2,568,009,810	2,986,417,971	3,096,664,954	3,591,741,370	3,758,219,691
Total Cost	(587,158,143)	(622,387,631)	(659,730,889)	(699,314,743)	(741,273,627)	(785,750,045)	(832,895,047)	(882,868,750)	(935,840,875)	(991,991,328)	(1,051,510,807)
Capital Expenditure	-	-	-	-	-	-	-	-	-	-	-
Operational & Maintenance	(587,158,143)	(622,387,631)	(659,730,889)	(699,314,743)	(741,273,627)	(785,750,045)	(832,895,047)	(882,868,750)	(935,840,875)	(991,991,328)	(1,051,510,807)
Cash Flow (CF)	863,232,337	1,068,504,983	1,097,617,003	1,343,344,808	1,375,815,834	1,683,824,959	1,735,114,763	2,103,549,221	2,160,824,079	2,599,750,043	2,706,708,883
Cummulative CF	(4,046,345,610)	(2,977,840,627)	(1,880,223,623)	(536,878,815)	838,937,019	2,522,761,978	4,257,876,741	6,361,425,961	8,522,250,041	11,122,000,083	13,828,708,966
Discount Factor	0.34699	0.31769	0.29087	0.26631	0.24383	0.22324	0.20440	0.18714	0.17134	0.15687	0.14363
Present Value (PV)	299,530,795	339,455,731	319,264,209	357,750,068	335,463,553	375,902,138	354,649,109	393,655,353	370,233,497	407,831,444	388,761,703
Cummulative PV	(5,700,924,904)	(5,361,469,173)	(5,042,204,964)	(4,684,454,896)	(4,348,991,344)	(3,973,089,206)	(3,618,440,097)	(3,224,784,744)	(2,854,551,247)	(2,446,719,803)	(2,057,958,100)
Payback Period											
Years	12	13	14	15	-	-	-	-	-	-	-
Month	-	-	-	5	- 6	- 17	- 24	- 35	- 39	- 49	- 51
Discounted Payback Period											
Years	12	13	14	15	16	17	18	19	20	21	22
Month	-	-	-	-	-	-	-	-	-	-	-

Source: Author

Table 7: Financial Analysis (continue)

(in thousands of rupiah)

Years	23 2047	24 2048	25 2049	26 2050	27 2051	28 2052	29 2053	30 2054	31 2055	32 2056	33 2057
Total Revenue	4,395,661,773	4,582,117,492	5,340,801,996	5,549,632,401	6,525,214,364	6,834,840,439	8,001,802,496	8,348,583,700	9,738,808,693	10,175,617,765	11,885,918,058
Total Cost	(1,114,601,456)	(1,181,477,543)	(1,252,366,196)	(1,327,508,168)	(1,407,158,658)	(1,491,588,177)	(1,581,083,468)	(1,675,948,476)	(1,776,505,384)	(1,883,095,707)	(1,996,081,450)
Capital Expenditure	-	-	-	-	-	-	-	-	-	-	-
Operational & Maintenance	(1,114,601,456)	(1,181,477,543)	(1,252,366,196)	(1,327,508,168)	(1,407,158,658)	(1,491,588,177)	(1,581,083,468)	(1,675,948,476)	(1,776,505,384)	(1,883,095,707)	(1,996,081,450)
Cash Flow (CF)	3,281,060,317	3,400,639,948	4,088,435,800	4,222,124,233	5,118,055,706	5,343,252,262	6,420,719,028	6,672,635,224	7,962,303,308	8,292,522,057	9,889,836,608
Cummulative CF	17,109,769,283	20,510,409,231	24,598,845,031	28,820,969,265	33,939,024,971	39,282,277,233	45,702,996,261	52,375,631,485	60,337,934,793	68,630,456,851	78,520,293,458
Discount Factor	0.13150	0.12040	0.11024	0.10093	0.09241	0.08461	0.07746	0.07092	0.06493	0.05945	0.05443
Present Value (PV)	431,468,363	409,438,059	450,689,619	426,132,046	472,945,405	452,068,759	497,365,088	473,240,419	517,030,281	493,011,117	538,334,246
Cummulative PV	(1,626,489,737)	(1,217,051,678)	(766,362,059)	(340,230,013)	132,715,393	584,784,152	1,082,149,240	1,555,389,660	2,072,419,940	2,565,431,057	3,103,765,303
Payback Period											
Years	-	-	-	-	-	-	-	-	-	-	-
Month	- 60	- 60	- 70	- 68	- 76	- 73	- 82	- 79	- 87	- 83	- 92
Discounted Payback Period											
Years	23	24	25	26	-	-	-	-	-	-	-
Month	-	-	-	9	- 4	- 14	- 27	- 36	- 50	- 57	- 73

(in thousands of rupiah)

Years	34 2058	35 2059	36 2060	37 2061	38 2062	39 2063	40 2064	41 2065	42 2066	43 2067	44 2068
Total Revenue	12,375,144,218	14,408,094,825	14,956,028,125	17,502,128,573	18,253,505,646	21,285,468,645	22,127,010,967	25,724,779,684	26,878,798,391	30,104,254,198	30,104,254,198
Total Cost	(2,115,846,337)	(2,242,797,117)	(2,377,364,944)	(2,520,006,841)	(2,671,207,251)	(2,831,479,686)	(3,001,368,468)	(3,181,450,576)	(3,372,337,610)	(3,574,677,867)	(3,789,158,539)
Capital Expenditure	-	-	-	-	-	-	-	-	-	-	-
Operational & Maintenance	(2,115,846,337)	(2,242,797,117)	(2,377,364,944)	(2,520,006,841)	(2,671,207,251)	(2,831,479,686)	(3,001,368,468)	(3,181,450,576)	(3,372,337,610)	(3,574,677,867)	(3,789,158,539)
Cash Flow (CF)	10,259,297,881	12,165,297,708	12,578,663,181	14,982,121,732	15,582,298,395	18,453,988,959	19,125,642,500	22,543,329,108	23,506,460,781	26,529,576,331	26,315,095,659
Cummulative CF	88,779,591,340	100,944,889,048	113,523,552,228	128,505,673,961	144,087,972,356	162,541,961,315	181,667,603,814	204,210,932,922	227,717,393,703	254,246,970,034	280,562,065,693
Discount Factor	0.04984	0.04563	0.04178	0.03825	0.03502	0.03206	0.02936	0.02688	0.02461	0.02253	0.02063
Present Value (PV)	511,297,120	555,100,045	525,503,756	573,069,734	545,705,691	591,711,537	561,472,680	605,931,405	578,476,167	597,752,437	542,861,208
Cummulative PV	3,615,062,423	4,170,162,468	4,695,666,224	5,268,735,959	5,814,441,649	6,406,153,187	6,967,625,867	7,573,557,272	8,152,033,439	8,749,785,875	9,292,647,083
Payback Period											
Years	-	-	-	-	-	-	-	-	-	-	-
Month	- 88	- 96	- 91	- 99	- 94	- 102	- 97	- 104	- 103	- 116	- 113
Discounted Payback Period											
Years	-	-	-	-	-	-	-	-	-	-	-
Month	- 78	- 95	- 98	- 116	- 118	- 137	- 138	- 157	- 164	- 193	- 199

Source: Author

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Table 7: Financial Analysis (continue)

(in thousands of rupiah)

Years	44 2068	45 2069	46 2070	47 2071	48 2072	49 2073	50 2074	51 2075
Total Revenue	30,104,254,198	33,716,764,701	33,716,764,701	37,762,776,466	37,762,776,466	42,294,309,641	42,294,309,641	47,369,626,798
Total Cost	(3,789,158,539)	(4,016,508,051)	(4,257,498,534)	(4,512,948,446)	(4,783,725,353)	(5,070,748,874)	(5,374,993,807)	(5,697,493,435)
Capital Expenditure	-	-	-	-	-	-	-	-
Operational & Maintenance	(3,789,158,539)	(4,016,508,051)	(4,257,498,534)	(4,512,948,446)	(4,783,725,353)	(5,070,748,874)	(5,374,993,807)	(5,697,493,435)
Cash Flow (CF)	26,315,095,659	29,700,256,650	29,459,266,167	33,249,828,019	32,979,051,113	37,223,560,767	36,919,315,835	41,672,133,363
Cummulative CF	280,562,065,693	310,262,322,343	339,721,588,511	372,971,416,530	405,950,467,642	443,174,028,410	480,093,344,245	521,765,477,608
Discount Factor	0.02063	0.01889	0.01729	0.01583	0.01450	0.01327	0.01215	0.01113
Present Value (PV)	542,861,208	560,966,430	509,438,085	526,443,422	478,071,959	494,044,245	448,636,278	463,638,289
Cummulative PV	9,292,647,083	9,853,613,513	10,363,051,599	10,889,495,021	11,367,566,979	11,861,611,225	12,310,247,503	12,773,885,792
Payback Period								
Years	-	-	-	-	-	-	-	-
Month	- 113	- 126	- 123	- 136	- 131	- 144	- 138	-
Discounted Payback Period								
Years	-	-	-	-	-	-	-	-
Month	- 199	- 232	- 236	- 273	- 276	- 317	- 319	-

FINANCIAL ANALYSIS OUTPUT		
Discount Rate using WACC	9.22%	
Internal Rate of Return (IRR):	13.26%	
Net Present Value (NPV):	12,773,885,792	> 0
Payback Period (PP):	16.4	Years
Discounted Payback Period:	27.7	Years
Profitability Index (PI):	2.5190	> 1

Source: Author

CONCLUSION

From the results of the calculation of financial feasibility above, it can be concluded as follows:

1. The Internal Rate of Return (IRR) value of 13.26% is greater than the WACC value of 9.22% which means the project is financially feasible to implement.
2. The Net Present Value (NPV) value of Rp. 12,773,885,792,000 or in other words positive value which means the project is financially feasible to be carried out.
3. The value of the Payback Period (PP) is 16.4 years, and the value of the Discounted Payback Period is 27.7 years, which are both less than the 50-year concession period. This means that the project is financially feasible to be implemented.
4. The Profitability Index (PI) value of 2.5190 is greater than 1, indicating that the project is financially feasible to be implemented.

From the parameters mentioned above, it can be concluded that the construction of the Pangkalan Brandan – Langsa Toll Road Section, which is part of the Binjai - Langsa Toll Road Section, is financially feasible to carry out even though the implementation process is staged.

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