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ANALYSIS OF ALTERNATIVE LAND UTILIZATION OF EX TRANSPORTATION DEPARTMENT OF SOUTH KALIMANTAN

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ABSTRACT

The Office Building of the Department of Transportation of the South Kalimantan Province is one of the assets owned by the Provincial Government of Kalimantan which was established in 1985 in Banjarmasin. When it was used by the Department of Transportation, around August, 2017 a fire broke out in the building which damaged the first and second floors of the building so that it could no longer be used. purpose of this study is to analyze the best alternative types of utilization in the context of land use from the Banjarmasin Transportation Department. This research uses the Analysis *Highest Best Uses* where the highest and best utilization of development alternatives are analyzed, so that the alternative results obtained are more optimal. Analysis of alternative uses is still adjusted to HBU analysis and Banjarmasin City Spatial Plan. The research sample is *Expert Respondents* for preliminary surveys regarding understanding of research instruments, and for research data analysis to obtain the highest and best alternative use. The results of the study indicate that the most appropriate indicators are alternative choices based on HBU analysis which is then adjusted to the Banjarmasin City Spatial Plan. Another factor is the physical, legal, and financial aspects. From the survey results it was found that the 3 best alternatives were further tested based on physical, legal and financial aspects. The three alternatives are compared to find the highest financial analysis results and the *net present value is* IDR. 824,366,847.00 with a *rate of return of* 6.9%, a *benefit cost ratio of* 1.1098, and a *payback period of* 27.3 years. So that the alternative with the best aspect that is considered to have maximum productivity is the Multipurpose Building.

Keywords: *asset utilization, highest and best use, best alternative selection.*

I. INTRODUCTION

South Kalimantan Provincial Transportation Agency Office Building is one of the assets owned by the Kalimantan Provincial Government located on Jl. Belitung Land Banjarmasin. Around August 2017 there was a fire in the building which damaged the first and second floors of the building. After the fire, the level of damage is analyzed according to the request of the relevant agency and the result of the building is included in heavy damage. In addition to analyzing the level of damage also tested by a *Hammer Test* to determine the compressive strength of structural elements in the building and the results were not recommended for the building to be used again. With the existing conditions that are heavily damaged, the building can be demolished and used to improve services to the community. So there HBU to be an analysis of the utilization of the building land, adjusted to the form of utilization of Regional Property and zoning in accordance with the Banjarmasin City Spatial Plan (RTRW) so that it can be utilized as well as possible and can help increase regional income.

II. LITERATURE REVIEW

a. State Building Government

Regulation No. 36 (2005) mentions that buildings used as government offices belong to the state, including other buildings that also function as school buildings. In addition, each building has its own functions and classifications, namely simple buildings, non-simple buildings, and special buildings.

b. Post Fire Building

According to Rochman (2006), many factors affect the strength of post-fire concrete, especially the level and duration of heating due to the fire In addition, the level of damage caused by building fires is divided into three, starting from the level of mild, moderate to severe damage. And to determine the level of fire damage in a building, it can take several stages of tests, namely non-destructive, destructive, and full-scale tests with loading.

c. Determination Demolition of

Building damage can be caused by several things, namely due to activity, human the expiration of age building or by disasters. natural damage does not always have an impact on fatal damage according to the class or level of damage to the building. The degree of damage to buildings is classified as mild, moderate and severe. Based on PP 36 of 2005 concerning Buildings, buildings that are heavily damaged and cannot be renewed and their use can endanger users, the community and the environment are no longer recommended for use. Besides the age of the building is also one of considerations for whether or not the building to be used. Because the age of the building must experience shrinking every year by 2% per year with a minimum residual value of 20% after the age of 50 years.

d. Banjarmasin Spatial Plan

The review of the Banjarmasin City Spatial Plan is intended to provide direction to the structure and pattern of the Banjarmasin City area so that it can be used as a basis for utilizing the city area to create a good environment for the community through the development and development program of the Banjarmasin City area. The objectives of the review are:

1. The compilation of policy patterns in the development and utilization of regional and city spaces in the city of Banjarmasin.
2. The formation structure and spatial pattern of urban areas that can be used as a spatial reference in the development of Banjarmasin City area
3. Compilation of indications of regional and city development programs that can be used as the basis for regional and city development and development activities.
4. The creation of a comfortable and controlled condition of the region and city in the utilization of the said region and city.

e. Asset Management

According to Prawoto (2004), the purpose of asset management is to maintain the high value of assets by providing efficient costs to produce *output* high so that it can provide the best to the user /customer while still paying attention to the regulations so that no party is harmed, including work safety and maintaining the surrounding environment.

f. The concept of *Highest Best Uses (HBU)*

Highest And Best Uses Analysis or commonly known as HBU is a concept in terms of optimizing assets and valuation of assets. In *the appraisal of real estate, it is* explained that there are four main points in determining the value of HBU, namely: a. *Physically possible* b. *Legally permissible* c. *Financially feasible Financial* (feasibility)

g. The Highest and Best Uses of Empty Land / Land Considered Empty

Wahyu (2001) states that the highest and best use of a land can be assumed to be empty land or land that is made empty after demolition. The value of land is usually estimated according to the condition of the land if the land is empty. Land values can be determined through their potential uses rather than their actual use. The fact that some of the developments that exist are possible to be dismantled, further justifies the assumptions contained in the concept of the highest and best use of land that is considered as if it is empty.

h. Comparative Analysis

According to Yuliana (2008), Economic Engineering is a technique of making a decision on the determination of some of the alternatives that exist but can only choose one of them which is considered the best on the condition while still meeting the required criteria. There are 6 systematic steps in this problem, namely:

1. Explain the alternatives to be analyzed
2. Explain the basic plan when comparing alternatives.

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3. Estimating each alternative's cash flow.
4. Determine the MARR value to be used for the alternative.
5. Compare alternatives with the chosen method.
6. Choosing the best of the results of analysis

i. HBU Analysis

Roger Kaufman & Fenwick W. English (in Warsita, 2011) explains that HBU analysis is a step to take action or a solution to an appropriate problem from several priority scales and then choose the most important thing to solve the problem.

j. The HBUAnalysis Function

There are 4 HBU analysis functions according to Warsita, Bambang et al. (2011), namely: a. Determine the appropriate HBU b. Identifying urgent HBU c. Determine the priority scale for the selection of actions d. Help analyze appropriate HBU to maximize the function of the HBU analysis, can go through 4 stages (Morison, 2011) analysis, namely, planning, data collection, analysis data, and making a final report *(output*)

Identification of Research Objects

Land South Kalimantan Provincial Transportation Office in Banjarmasin. The land for the Transportation Service Office stands on a land area of 2171 m^2. Because the building has been burned, demolition must be carried out and only the land can be used, so that what is identified in real property includes the size of the land and the shape of the land as well as the location to

Review the Banjarmasin City Spatial Plan.

Land Office of the Transportation Service is located on Jl. Belitung Banjarmasin. According RTRW Banjarmasin city, the region was included in the administrative borders of the District Banjarmasin West as a sub service center of town where there several determination of land use, and after an interview with the Head of Banjarmasin West regarding the analysis of HBU, then we got a couple of designated land use, including:

a. Region government buildings
b. Educational
c. areas Trade and other service
d. areas Recreational areas and public facilities

Areas of socio-cultural facilities

Data Analysis and Questionnaire Results

Questionnaire is divided into 3 parts, namely the first part of the questionnaire regarding the respondent's identity fields, the second part contains 7 questions about the approval of land use. And in the second part contains 5 questions about choosing the best alternative on land. 3 sections in this questionnaire, namely:

a. Self-Identity

Section This section contains the identities of selected respondents, which can be seen from the following Table IV.1:

Table IV. 1 Questionnaire First Part

Respondents	Identity of Respondents
1	Head of West Banjarmasin District
2	Secretary of West Banjarmasin Sub-District
3	Head of Banjarmasin City Public Works Office
4	Head of Spatial Planning Department of Banjarmasin City Public Works
5	Surrounding
6	CommunitiesSurrounding Communities

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b. Section of Land Use Approval

This section contains approval of utilization land. The results of the second part of the questionnaire can be seen from the following Table IV.2:

Table IV. 2 Part Two Questionnaire

Respondents	Government		Art and Cultural Buildings		Public		Facilities Education Facilities		Rent to Investors	
	YES	NO	YES	NO	YES	NO	YES	NO	YES	NO
1	√		√		√		√			√
2	√		√		√		√			√
3	√		√			√	√			√
4	√		√		√		√		√	
5	√		√		√		√			√
6	√		√		√		√			√
Total	**6**	**0**	**6**	**0**	**5**	**1**	**6**	**0**	**1**	**5**

Based on the results of the questionnaire in Table IV.2 above the section on land use approval, the results obtained are that most of the respondents chose agreed to use the land. So that from the results of the first part of the questionnaire, you can continue to the second part regarding the best alternative to land use.

c. Alternative Utilization Options Section

This section contains alternative development options based on HBU analysis and the RTRW of Banjarmasin City. The results of the second part of the questionnaire can be seen in Table IV.3 below:

Table IV. 3 Questionnaire Part Three

Respodents	Government of				Art and Cultural Buildings				Public				Facilities Education Facilities				Leased to Investors			
	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d	a	b	c	d
1			√			√					√		√							
2			√			√			√					√						
3			√			√									√					
4	√						√				√				√					√
5			√					√	√						√					
6			√				√			√			√							
Total	**1**		**5**			**3**	**2**	**1**	**2**	**1**	**2**		**1**	**1**	**3**					**1**

Based on the results of the questionnaire from Table IV.3 it is found that there are 3 highest alternatives for selecting land use, namely:

1. Government, namely Multipurpose Building with the number of modes = 5
2. Arts and Culture Buildings, namely the Banjar Cultural Arts Building with the number of modes = 3
3. Educational facilities, namely PAUD and Children's Charter with the number of modes = 3

From the results of the questionnaire There are 3 types of alternative uses, which can be seen in the following table:

Table of Selected

Alternative Alt	Options
A	Banjar Cultural Arts Building
B	PAUD and Child Care Center
C	Multipurpose Building

Legally Permissible (Legality Feasibility)

Anal This legality issue is related to the provisions in the form of zoning / land designation for the three alternatives can be seen in Table IV.5 below:

Table IV. 5 Legality Eligibility Provisions

No.	Alternative Use of	Building (m2)of	Height Buildings (Floor)	Description
1.	Alternative A	666,78	2	Decent
2	Alternative B	825	2	Worthy
3.	Alternative C	1243	2	Decent

Financially feasible (financial feasibility)

Analysis of financial feasibility with regard to whether property or alternative property can provideprofit or *net income* a positive. The required cost plan of each development alternative can be seen in the table below:

a. Alternative A

Table IV. 6 Alternative Development Cost Plan A

No	Type of Work	Total Price (Rp)
1.	Preparatory Work	361,651,085.00
2.	Structural Work	1,581,900,138.02
3.	Architectural Work	1,065,650,909.99
4.	Mechanical Work	117,648,664.00
5.	Electrical Work	42,535,000.00
Total		3,169,385,797.02
Rounded off		3,169,380,000.00

Based on Table IV. 6, planning costs for development is worth Rp. 3,169,380,000, - So that the value of care is assumed to be Rp. 3.169.380.000 * 2% = 63.387.600 per year. Because the function of this building will only be rented out, it is assumed that the total expenses are:

Investment costs : Rp. 3,169,380,000.00
Maintenance costs : Rp. 63,387,600.00 / year

b. Alternative B

Table IV. 7 Alternative Development Cost Plan B

No	Type of Work	Total Price (IDR)
1.	Preparation Work	383,398,965.00
2.	Structural Work	1,537,887,270.09
3.	Architectural Work	1,533,410,408.74
4.	Mechanical Work	192,554,650.00

5.	Electrical work	272,524,800.00
Total		3,919,776,093.84
Rounded off		3,919,770,000.00

Based on table IV.7, the planning costs for development are worth Rp. 3,919,770,000, - So that the value of treatment is assumed to be Rp. 3,919,770,000 * 2% = 78,395,400,00 per year. Due to the function of this building for the education area it is assumed that the total expenditure is:
Investment costs : Rp. 3,919,770,000.00
Maintenance costs : Rp. 78,395,400.00 / year

b. Alternative C

Table IV. 8 Alternative Development Cost Plan C

No	Type of Work	Total Price (IDR)
1.	Preparatory Work	448,243,177.45
2.	Structural Work	2,786,914,203.66
3.	Architectural Work	2,353,207,016., 57
4.	Mechanical Work	121,931,426, 75
5.	Electrical work	194,973,460.56
Total		5,905,269,285.00
Rounded off		5,905,260,000.00

Based on Table IV.8, the planning costs for development are IDR 5,905,260,000, so the assumed maintenance value is IDR 5,905,260,000 * 2% = 118,105,200 / year. Because the function of this building will only be rented out, it is assumed that the total expenditure is the
investment cost : IDR 5,905,260,000.00
Maintenance costs : IDR118,105,200.00 / Income planning The value of income can be seen in Table IV.9 below (*Details Can be seen in Appendix 3 on page95*)

Table IV. 9 Total Third Alternative Income

NO	REVENUE	TOTAL PRICE (RP)
Continued Table IV.9		
1.	Alternative A	120,000,000 / year
2.	Alternative B	480,000,000 / year
3.	Alternative C	576,000,000 / year

Maximum Productivity Test / Commercial Aspects

A property is said to have maximum productivity if it has a better financial benchmark than other property or alternative properties. The financial benchmarks that are usually used are *net present value* (NPV), *rate of return* (ROR), *benefit cost ratio* (BCR) and *payback period*.

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Analysis of the present value / *Net present value* (NPV)

a. Alternative A

Table IV. 10 Alternative Cash Flow A

No	Description	Unit	Revenue	Expenditures (Rp)
1.	Development Investment Costs (P)	-		3,169,380,000
2.	Total revenue costs (A_1)	Annual	120,000,000.00	
3.	Maintenance costs (A_2)	Annual		87,387 .600.00
4.	Residual value (F)	25%	IDR 792,345,000	
5.	Building period (N)	50 years		
6.	MARR applies	6%		

PW (-) = P + A_2 (P / A, i, N)
PW (-) = IDR 3,169,380,000 + IDR 87,387,600 (15,762)
PW (-) = IDR 4,546,783,351
PW (+) = $A_{(+)}$(P / A, i, N) + F (P / F , i, N)
PW (+) = IDR 120,000,000 (15,762) + IDR 792,345,000 (0.054)
PW (+) = IDR 1,934,226,630
So it is found that
PW (+) IDR 1,934,204,733 <PW (-) IDR 4,546,783,351
So that the value of NPV (P) = PW (+) - PW (-)
= IDR 1,934,204,733 - IDR 4,546,783,351
= IDR -2,612,556,721

Based on the results of the financial analysis of the above costs, the NPV results are Rp. 2,612,556,721 and indicates that the value of PW (+) <PW (-) which means that the investment has a negative value and is not profitable financially with a MARR of 6% and a period (N) of 50 years.

b. Alternative B

Table IV. 11 Alternative B Cash Flow

No	Description	Unit	Revenue	Expenditure (Rp)
1.	Development Investment Costs (P)	-		3,919,770,000.00
2.	Total income costs (A_1)	Annual	480,000,000.00	
3.	Maintenance and operational costs (A_2)	Annual		339,395,400.00
4.	Residual value (F)	25%	979,942,000.00	
5.	Building period (N)	50 years		
6.	MARR applies	6%		

PW (-) = P + A_2 (P / A , i, N)
PW (-) = IDR 3,919,770,000+ IDR 339,395,400 (15,762)
PW (-) = IDR 9,278,777,494
PW (+) = $A_{(+)}$(P / A, i, N) + F (P / F, i, N)
PW (+) = IDR 480,000,000 (15,762) + IDR 979,942,000 (0.054)
PW (+) = IDR 7,618,676,895
So it is found that
PW (+) IDR 7,618,676,895 <PW (-) IDR 9,278,777,494
So that the value of NPV (P) = PW (+) - PW (-)
= IDR 7,618,672,170 - IDR 9,278,777,494
= IDR 1,660,100,599

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Based on the results of the financial analysis of the above costs, it is obtained NPV results of Rp. 1,660,100,599 and shows that the value of PW (+) <PW (-) which means that the investment has a negative value and is not financially profitable with a MARR of 6% and period (N) 50 years.

c. Alternative C

Table IV. 12 Alternative Cash Flow C

No.	Description	Unitof	Receipt	Expenditure(Rp)
1.	Development Investment Costs (P)	-		5,905,260,000.00
2.	Total revenue costs (A_1)	Annual	576,000,000.00	
3.	Maintenance costs (A_2)	Annual		154,105,200.00
4.	Residual value (F)	25%	1,476,315,000.00	
5.	Building period (N)	50 years		
6.	MARR applies	6%		

PW (-) = P + A_2 (P / A, i, N)
PW (-) = IDR 5,905,260,000 + IDR 154,105,200 (15,762)
PW (-) = IDR 8,344,266,162
PW (+) = $A_{(+)}$(P / A, i, N) + F (P / F, i, N)
PW (+) = IDR 576,000,000 (15,762) + IDR 1,476,315,000 (0.054)
PW (+) = IDR 9,158,633,010
So it is found that
PW (+) IDR 9,158,633,010 > PW (-) IDR 8,344,266,162
So that the NPV (P) = PW (+) - PW (-)
= IDR 9,158,633,010 - IDR 8,344,266,162
= IDR 824,366,847

Based on the results of the calculation of the financial analysis of the above costs, the NPV results are IDR 824,366,847.00 and it shows that the value of PW (+)> PW (-) which means that the investment has a positive value and is financially profitable with a MARR of 6% and a period (N) of 50 years.

Analysis of the *Rate Of Return* (ROR), *Benefit Cost Ratio*, and *Payback Period* (PP)

To facilitate the analysis of the *Rate of Return* (ROR), *Benefit Cost Ratio*, and *Payback Period* (PP), the selection of several alternatives is analyzed by comparing alternatives to other alternatives. The alternatives are arranged in order starting from the smallest investment. Details can be seen in Table IV.13 below:

Table IV. 13 Alternative Land Use of Ex Transportation Agency

	(Alternative A) (Rp)	(Alternative B) (Rp)	(Alternative C) (Rp)
Investment (P)	3,169,380,000.00	3,919,770,000,005	5,905,260,000.00
Cash In Flow (A_1)	120,000,000.00	480,000,000.00	576,000,000.00
Cash Out Flow (A_2)	87,355,160.00	339,395,400.00	154,105,200.00
Remaining Value (F)	792,345,000, 00	979,942,500.00	1,476,315,000.00
Age (years)	50	50	50

The results of these calculations can be seen from the following Table IV.14:

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Table IV. 14 Comparison of Alternative ROR Methods

Description	Alternative A	Alternative B	Alternative C
Investment	3,169,380,000.00	3,919,770,000.00	5,905,260,000.00
Cash In Flow	120,000,000.00	480,000,000.00	576,000,000.00
Cash Out Flow	87,355 .160.00	339,395,400.00	154,105,200.00
Remaining Value (F)	792,345,000.00	979,942,500.00	1,476,315,000.00
Comparison	A - Zero	B - Zero	C - Zero
Δ Investment	3,169,380,000, 00	3,919,770,000.00	5,905,260,000.00
Δ Cash In Flow	120,000,000.00	480,000,000.00	576,000,000.00
Δ Cash Out Flow	87,355,160.00	339,395,400.00	154,105,200.00
Δ Remaining Value (F)	792,345,000.00	979,942,500.00	1,476,315,000.00
P / A Δ Cash In Flow	1,891,440,000.00	7,565,760,000.00	9,078,912,000.00
P / A Δ Cash Out Flow	1,377 .403,351.00	5,359,007,494.00	2,429,006,612.00
P / F Δ F	42,786,630.00	52,916,895.00	79,701,210.00
ROR	0.53%	2.8%	6.9%
Selected	Zero (Not Reaching MARR Value)	Zero (Not Reaching MARR Value)	C (Reaching MARR Value) It

Can be seen from Table IV.12 above that the value of i exceeds the MARR value yes ng is set at 6% is alternative C so it means that the rate of return is achieved.

Benefit Cost Ratio (BCR)

The results of these calculations can be seen from the following Table IV.15:

Table IV. 15 Comparison of Alternative BCR Methods

Description	Alternative A	Alternative B	Alternative C
Investments	3,169,380,000.00	3,919,770,000.00	5,905,260,000.00
Cash In Flow	120,000,000.00	480,000,000.00	576,000,000.00
Cash Out Flow	87,355 .160.00	339,395,400.00	154,105,200.00
Remaining Value (F)	792,345,000.00	979,942,500.00	1,476,315,000.00
Comparison	A - Zero	B - Zero	C - Zero
Δ Investment	3,169,380,000, 00	3,919,770,000.00	5,905,260,000.00
Δ Cash In Flow	120,000,000.00	480,000,000.00	576,000,000.00
Δ Cash Out Flow	87,355,160.00	339,395,400.00	154,105,200.00
Δ Remaining Value (F)	792,345,000.00	979,942,500.00	1,476,315,000.00
P / A Δ Cash In Flow	1,891,440,000.00	7,565,760,000.00	9,078,912,000.00
P / A Δ Cash Out Flow	1,377 .403,351.00	5,359,007,494.00	2,429,006,612.00
P / F Δ F	42,786,630.00	52,916,895.00	79,701,210.00
B / C	0.4254	0.8211	1,098
Selected	<1 (Not Selected)	<1 (Not Selected)	C> 1 (Selected)

From Table IV.13 above, it can be seen that the value of the selected BCR is an alternative to a Multipurpose Building with value i the ratio of B / C> 1 is 1.098> 1 so it can be said that this alternative development is feasible and acceptable.

Table IV. 16 Comparison of Alternative PP Methods

Description	Alternative A	Alternative B	Alternative C
Investment	3,169,380,000.00	3,919,770,000.00	5,905,260,000.00
Cash In Flow	120,000,000.00	480,000,000.00	576,000,000.00
Cash Out Flow	87,355 .160.00	339,395,400.00	154,105,200.00
Remaining Value (F)	792,345,000.00	979,942,500.00	1,476,315,000.00
Comparison	A - Zero	B - Zero	C - Zero
Δ Investment	3,169,380,000, 00	3,919,770,000.00	5,905,260,000.00
Δ Cash In Flow	120,000,000.00	480,000,000.00	576,000,000.00
Δ Cash Out Flow	87,355,160.00	339,395,400.00	154,105,200.00
Δ Remaining Value (F)	792,345,000.00	979,942,500.00	1,476,315,000.00
P / A Δ Cash In Flow	1,891,440,000.00	7,565,760,000.00	9,078,912,000.00
P / A Δ Cash Out Flow	1,377 .403,351.00	5,359,007,494.00	2,429,006,612.00
P / F Δ F	42,786,630.00	52,916,895.00	79,701,210.00
PP	n> 50 (Not reached)	n> 50 (Not achieved)	n <50 = 27.39 years (achieved)
Selected	Zero	Zero	C

from Table IV.14 above it can be seen that the three alternatives that have a value *Payback Period* less than the economic value of the building is alternative C, namely the Multipurpose Building with avalue of *Payback Period* 27.39 years.

III. RESULTS AND DISCUSSION

Based on the results of the interviews, it was found that the variables were processed into a questionnaire to get the best alternative to use the land in the former Banjarmasin Transportation Agency. From the results of the questionnaire obtained 3 best alternatives which were analyzed using HBU analysis. The three alternatives were tested from various aspects, namely legality due diligence, financial due diligence, and maximum productivity test. And from the results of the comparison regarding the maximum productivity of the three types of development alternatives, it is found that the NPV, ROR, BCR and PP values of the building construction alternatives. To simplify the report, the calculation results are presented in tabular form. Following are the results of the calculation of the maximum productivity of alternative building construction can be seen in Table IV.17 below:

Table IV. 17 Results of Alternative Use of Financial Analysis

No	Item	Alternative A	Alternative B	Alternative C
1	*NetValue* (NPV)	Present-2,612,556,721 (not accepted)	-1,660,100,599 (not accepted)	824,366,847 (accepted)
2	*Rate of Return* (ROR)	0.53% (the value is smaller than MARR so it cannot be accepted)	2.8% (the value is smaller than MARR so that it cannot be accepted)	6.9% (the value is greater than MARR so it can be accepted)
3	*Benefit Cost Ratio* (BCR)	0.4254 <1 (not accepted)	0.8211 <1 (not accepted)	1.1098> 1 (accepted)
4	*Payback Period*	n> 50 (Not achieved)	n> 50 (Not achieved)	27.39 years (Achieved)

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From Table IV.15 above, it can be concluded that in terms of maximum productivity, the development alternative that meets the requirements in all the assessment criteria based on the alternative being compared financially is the Multipurpose Building.

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