SCHEDULING OF APPLICATION FOR SITEPLAN AUTHORIZATION PERMIT

Case of Licensing Process at Investment and Integrated Licensing Services Office in Sleman Regency

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ABSTRACT

The permit process must comply with laws and regulations. The permit functions as controlling and supervising tool from the government of activities in certain cases based on the guidelines that must be implemented. The permit also functions as a disciplinarian and regulator in accordance with the law in the administration of government. In the process, several constrains or obstacles often occur in terms of the period of the process as well as technical and non-technical constrains. In this research, an analysis of the scheduling of the site plan permit approval process is based on field data related to the site plan permit approval process with the PERT method. The data used are primary data in the form of interviews and filling in the form of questions and secondary data in the form of a site plan approval process flow. The data that has been collected is then processed and analyzed in several stages. First, calculate the expected time period (te) using interview data and the results of filling in the expected time period (te), so that the expected time period for each activity will be found in accordance with the site plan approval process flow. Second, determine the dependency relationship between activities. In this stage, the relationship between each activity is determined. Third, create a network by changing the existing site authorization process flow into a form of network planning. The results of the schedule using the PERT method are a period of 38 days with alternatives that can be done to reach the time (Tx) of 18 working days in accordance with the Regent Regulations. In addition, the probability of the overall activity being completed is 0.8531 or 85.31%.

Keywords: Network Planning; Permit; PERT; Site Plan

INTRODUCTON

Permit in general functions as government control, supervision, and regulator of activities in certain cases which provisions contain guidelines that must be carried out by either those concerned or by authorized officials (Soeharto, 1999). As a function of control, it is intended that every form of community activity does not conflict with each other, so that order can be applied in every aspect of community life. As a function of regulator, permit acts as the foundation of legal instruments in the administration of government. Permit is provision, made with applicable terms and conditions, namely: (1) requirements, (2) rights and obligations, (3) procedure, (4) time period, (5) service time, (6) costs, (7) complaints, dispute resolution mechanisms, and (8) sanctions (Husen, 2010).

Based on the functions, permit is one of the process that must be done before carrying out activities, especially construction work. There are many reports stating that in the Investment and Integrated Licensing Services Office in Sleman Regency, the time period of permit authorization exceeds the expected time stated in the receipt. The data can be seen in the following table:

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Table 1.

No	Site Plan Application	The Number of Application File	Completion Time						Additional Information
			Files corresponding to SS	%	Files non corresponding to SS	%	Unfinished Files	%	
1	Applications in 2015	231	102	44,16	81	35,06	48	20,78	- SS (service standard)
2	Applications in 2016	272	103	37,87	109	40,07	60	22,06	- non corresponding= exceeding the
3	Applications in 2017	265	79	29,81	108	40,75	78	29,43	service standard tine
	Total	**768**	**284**	**36,98**	**298**	**38,8**	**186**	**24,22**	

In the field of Spatial Utilization Permits in the Integrated Investment and Licensing Services Office of Sleman Regency, there are 3 permits issued, namely Permits for Business Land Utilization, Permits for Non-Business Land Utilization, and Building Construction Permits, which have the following service standards:

1. The Permit for Business Land Utilization consists of: ratification of the Building Planning Plan / Site Plan with a service standard (18 working days if the requirements are correct and complete) and the validation of the Permit for Business Land Utilization which is approved by the Head of Service and the Regent with a service standard (60 working days if the requirements are correct and complete),
2. Permits for Non-Business Land Utilization consists of: Certificate of Building and Environmental Management with the service standard of 60 working days if the requirements are correct and complete,
3. Building Construction Permits consists of: Building Permit, Tower Permit, Advertisement Permit and FO Permit with 30 working days service standard if the requirements are complete.

From the description explained, the research questions are:

1. How long does it take to complete 1 permit application file at the Investment and Integrated Licensing Services Office in Sleman Regency, especially on the site plan approval?
2. What causes the delay in the site plan approval process?
3. What is the solution that must be done for the cause of delay in the site plan approval process?
4. Will there be any suggestion in the form of alternatives regarding the time period to complete the process of permit approval in the Investment and Integrated Licensing Services Office especially in Sleman Regency?

The purpose of this research is to determine the process time of the permit application process that has been applied until now for submitting site plan building permit that has not yet been built.

PERT

Program Evaluation and Review Technique (PERT) is a network model that is able to map the time of completion of random activities (Taha, 1999). PERT was developed in the late 1950s for the U.S Navy's Polaris that has thousands of contractors.

"PERT is developed in order to create space / potential for reducing the time and coset needed to complete the projectt".

In project management, an 'activity' is an action That must be done and an 'event' is the completion stage of one or more activities. Before an activity can begin, all activities that are prerequisites for the activity must be completed. The PERT diagram has two main components, namely activities and milestones.

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Both of these components are marked with arcs and points. Activities are represented on arcs and milestones are drawn on points (circles).

The duration of the activity consists of: start time and finish time. In AOA, it is known as:

1. Earliest Start (ES) is the earliest / fastest time of an activity can begin
2. Earliest finish (EF) is the earliest / fastest time an activity can be completed
   EF = ES + D
3. Latest Start (LS) is the latest time an activity must begin
   LS = LF – D
4. Latest Finish (LF) is the latest time of an activity must be finished
   LF = LS + D

Assumptions in the PERT method are illustrated in the calculation of the following formulas:

1. To calculate the expected timeframe (Te). The formula used to calculate the expected time period is:

$$\mu = \frac{a+4m+b}{6}$$

Information:
(a) The fastest time
(b) The longest time
(m) The usual time

2. From the time information obtained, the variant value will be calculated using the formula:

$$\text{variance} = \left(\frac{(tb-ta)}{6}\right)^2$$

3. After the variant value is obtained, then the standard deviation is calculated using the formula:

$$v_E = \sqrt{\sum v}$$

4. From the results of the expected time frame (Te), variance, and standard deviation obtained, they are used to determine the probability level with the formula:

$$Normal\ z\quad value = \frac{Tx-te}{Sd}$$

Tx is the desired completion time, and Sd is the standard deviation value. After getting the probability level, the z value will be known. From the normal z table value, the percentage of success rate for completing 1 file with a predetermined time will be known. The number z is calculated using the cumulative normal distribution table z.

METHODS

Location and Time

This research was conducted at the Investment and Integrated Licensing Services Office in Sleman Regency in Beran Lor, Tridadi, Sleman, Yogyakarata 55511.

Data Collection Method

The data in this study are primary data and secondary data. The primary data are in the form of interviews and direct filling of questions forms. The secondary data are in the form of the flow of the site plan ratification process, information on the application data for site plan licensing applications that have been entered and are ready. The data obtained are the data of each process, namely: target time, real time (fast, slow and frequent), number of requests that are submitted for all permits and human resources in charge.

Data Analysis Method

The method used to analyze the scheduling of research results is PERT (Project Evaluation and Review Technique) method (Oberlender, 2000). The data that has been collected is processed and analyzed with the following stages (Hutagaol, et al, 2013) :

1. Calculate the expected timeframe (te). With interview data and the results of filling in the questions, the expected time period (te) is calculated. Thus, the timeframe expected by each activity will be found in accordance with the site plan approval process flow;
2. Determine the dependency relationship between activities. At this stage the

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relationship between each activity and other activities is determined;

3. Create a network. The existing site validation process data flow is converted into network planning (Kajatmo, 1977);
4. Calculates the total duration and probability level

Figure.1 Flow Chart

RESULTS AND DISCUSSION

Process flow of file request for site plan approval

In the illustrated activity process flow, there are 26 licensing process activities starting with the submission of the application file until the application file becomes a Decree that has been signed by the Head of Service. It can be seen in appendix figure 2. Flow Chart of Recommended Site Plan Application File.

The application data is from 2015 to 2017, starting from the incoming file to the finished file. This data is used to compare the time the file is completed between the time currently applied and the results of the current research. The results will indicate whether it is in accordance

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with the results of the study or any improvement to the rules governing the completion of the site plan approval process is needed.

The following table is a recapitulation of site plan approval data:

Table 2.

Time	Year 2015	2016	2016
Fastest	5 days	2 days	4 days
Longest	825 days	506 days	334 days

This information was obtained from direct interviews conducted on Thursday, March 7, 2019 located at the Investment and Integrated Licensing Services Office in Sleman Regency and question form submitted and filled out directly by the officer who processed the site plan approval request file. The questions in the form are aimed to find out the expected time (te), the fastest time (a), the longest time (b) and the time that often occurs. This expected time is needed to know the expected time of each process.

The Creation of Network with PERT

From the data information obtained, the flow of activities is converted into a network planning (Badri, 1991) diagram for buildings that have been built and buildings that have not yet been built which can be illustrated can be seen bellows.

Network diagram for the process of filing a permit for building site plan approval that has not yet been built.

From the network data that has been drawn, the timeframe needed (te) will be calculated, while the calculation results can be seen table 3. Expected time period (Te) calculation.

Table 3. Expected time period (Te) calculation

NO	Activity	time (minute) a	m	4m	b	Te	=	$\frac{a + 4m + b}{6}$	Te Rounded
1	A	1	1	4	1	Te	.=	1	1
2	B	10	12	48	2.880	Te	.=	489,67	490
3	C	180	2.880	11.520	420	Te	.=	2.020	2.020
4	D	5	5	20	60	Te	.=	14,17	-
5	E	2.880	10.080	40.320	20.160	Te	.=	10.560	-
6	F	4.320	11.520	46.080	43.200	Te	.=	15.600	-
7	G	5	20	80	360	Te	.=	74	74
8	H	30	180	720	1.440	Te	.=	365	365
9	I	30	60	240	1.440	Te	.=	285	285
10	J	60	180	720	2.880	Te	.=	610	610
11	K	10	30	120	300	Te	.=	71, 67	72
12	L	30	2.880	11.520	1.440	Te	.=	2.165	2.165
13	M	5	10	40	30	Te	.=	12, 5	13
14	N	30	2.880	11.520	120	Te	.=	1.945	1.945
15	O	10	30	120	90	Te	.=	36, 67	37
16	P	3	7	28	10	Te	.=	6, 83	7
17	Q	2	10	40	10	Te	.=	8, 67	9
18	R	60	2.880	11.520	1.440	Te	.=	2.170	2.170
19	S	1	5	20	3	Te	.=	4	4
20	T	5	10	40	2.880	Te	.=	487, 5	484
21	U	1	2	8	3	Te	.=	2	2
22	U'	5	5	20	2.880	Te	.=	484, 17	484
23	V	1	3	12	2	Te	.=	2, 5	3
24	W	10	15	60	20	Te	.=	15	15

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25	X	5	15	60	1.440	Te	.=	250, 83	251

Note : time in minutes

Expected timeframe (Te) results are made into a PERT network diagram for buildings that have not yet been built. Activities D, E and F are not carried out because the building has not yet been built, so the correction of the data is carried out administratively without site review. Furthermore, before the application for site plan approval is submitted, the applicant must first go through an Permits for Business Land Utilization process that has been subjected to a site review. Based on the previous request, the request for ratification of the site plan is no longer needed for activities D, E and F.

The time obtained from the network planning diagram to complete the site plan approval process for 1 application file is: 11,510 minutes, from 11,510 minutes to 191,833 hours, and rounded up to 192 hours. To be changed to time based on days, the effective working time in 1 day is 5 hours. Therefore, from 38.4 hours to 38 days.

Focusing on the time of completion of the application file, the expected time (Te) is 126 (one hundred twenty-six) working days. This refers to the submission with the condition of the building already built.

From the network diagram and the expected timeframe (te), it is known that there is a very critical time which is in the path of the E and F. activities. In the activity E, the expectation time (te) is 10,560 minutes / 176 hours / 35.2 days, and rounded off into 35 days. In activity F, the expectation time (te) is 15,600 minutes / 260 hours / 52 days.

Probability calculation using the normal-Z-value table of authorization application for a building site that has not yet been established

From the following table, the time to complete the site plan approval process for 1 application file is: 11,510 minutes, from 11,510 minutes to 191,833 hours rounded up to 192 hours. To be changed to time based on days, the effective working time in 1 day is 5 hours. Therefore, from 192 hours to 38 days

Table 4. Expected time period (Te) calculation

NO	Activity	time (minute)				Te	=	$\frac{a + 4m + b}{6}$	Te Rounded
		a	m	4m	b				
1	A	1	1	4	1	Te	.=	1	1
2	B	10	12	48	2.880	Te	.=	489,67	490
3	C	180	2.880	11.520	420	Te	.=	2.020	2.020
4	D	-	-	-	-	Te	.=	-	-
5	E	-	-	-	-	Te	.=	-	-
6	F	-	-	-	-	Te	.=	-	-
7	G	5	20	80	360	Te	.=	74,17	74
8	H	30	180	720	1.440	Te	.=	365	365
9	I	30	60	240	1.440	Te	.=	285	285
10	J	60	180	720	2.880	Te	.=	610	610
11	K	10	30	120	300	Te	.=	71, 67	72
12	L	30	2.880	11.520	1.440	Te	.=	2.165	2.165
13	M	5	10	40	30	Te	.=	12, 5	13
14	N	30	2.880	11.520	120	Te	.=	1.945	1.945
15	O	10	30	120	90	Te	.=	36, 67	37
16	P	3	7	28	10	Te	.=	6, 83	7
17	Q	2	10	40	10	Te	.=	8, 67	9
18	R	60	2.880	11.520	1.440	Te	.=	2.170	2.170
19	S	1	5	20	3	Te	.=	4	4
20	T	5	10	40	2.880	Te	.=	487, 5	484
21	U	1	2	8	3	Te	.=	2	2
22	U'	5	5	20	2.880	Te	.=	484, 17	484

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23	V	1	3	12	2	Te	.=	2, 5	3
24	W	10	15	60	20	Te	.=	15	15
25	X	5	15	60	1.440	Te	.=	250, 83	251

Note: time in minutes

Table 5. Variance Calculation

Activity	a	b	Variant Formula	Result
A	1	1		-
B	10	2.880		228.808
C	180	420		1.600
	-	-		-
	-	-		-
	-	-		-
G	5	360	$\text{Variance} = \left(\frac{tb-ta}{6}\right)^2$	3.501
H	30	1.440		55.225
I	30	1.440		55.225
J	60	2.880		220.900
K	10	300		2.336
L	30	1.440		55.225
M	5	30		17
N	30	120		225
O	10	90		178
P	3	10		1
Q	2	10		2
R	60	1.440		52.900
S	1	3		0
T	5	2.880		229.601
U	1	3		0
U'	5	2.880		229.601
V	1	2		0
W	10	20		3
X	5	1.440		57.201

The expected time period (te) is: 38 (thirtyeight) days, and the total number of variance values is 1,192,543 minutes (Table of variance calculations). Henceforth, the standard deviation is calculated by obtaining the standard deviation value of √1.192.543 = 1,092.04 minutes equivalent to 18.20 days. Calculating the normal-Z-value requires the desired completion time (Tx) and the expected time period (te) of critical activities. The formula for calculating the normal-Z-value is:

The time (Tx) is 18 working days according to the regent regulation, so:

Normal Z-value $= \frac{1 - 3}{1.2}$

$= -1.098$

Rouded $= -1.10$

Table 6.

No	Tx (days)	Normal-Z-value	Probability (%)
1.	18	- 1.10	13,57
2.	50	0.66	75,45
3.	75	2.03	97,88

By using the normal-Z-value table, the probability that the overall activity can be completed within 18 days is 0.1357 or equal to only 13.57%.

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From the results of the probability that has been obtained, the success rate for completing 1 file request for site plan approval is 97.88% with a 75-day completion time, equivalent to 2.5 months. This result shows that it is a long process. For this reason, in this study, several alternatives were made to determine the probability level of effective time to complete 1 file of site plan approval.

With Regent Regulation number 49 of 2012 concerning Implementation Guidelines for Regional Regulations of Sleman Regency Number 5 of 2011 concerning Buildings, article 75 letter 2 point b RTB and / or SKTBL, no later than 18 (eighteen) working days after the documents are declared complete and correct (Regent Regulation, No.49, 2012). This is based on the assumption of calculation simulation data for 18 (eighteen) working days.

There are several alternatives for the permit process for buildings that have not yet been built, namely by making improvements to the time of each activity in accordance with the logical way to process 1 file of application within the expected time (Te) in the following table:

Table 7. Expected time period (Te) calculation

NO	Activity	time (minute)				Te	=	a + 4m + b / 6	Te Rounded
		a	m	4m	b				
1	A	1	1	4	1	Te	.=	1	1
2	B	10	12	48	30	Te	.=	14, 67	15
3	C	180	180	720	300	Te	.=	180	180
4	D	-	-	-	-	Te	.=	-	-
5	E	-	-	-	-	Te	.=	-	-
6	F	-	-	-	-	Te	.=	-	-
7	G	5	20	80	360	Te	.=	74, 17	74
8	H	10	30	120	10	Te	.=	23, 333333	23
9	I	30	60	240	120	Te	.=	65	65
10	J	60	180	720	210	Te	.=	165	165
11	K	10	30	120	300	Te	.=	71, 67	72
12	L	5	30	120	10	Te	.=	23	23
13	M	5	10	40	30	Te	.=	12, 5	13
14	N	5	30	120	10	Te	.=	23	23
15	O	10	30	120	90	Te	.=	36, 67	37
16	P	3	7	28	10	Te	.=	6, 83	7
17	Q	2	10	40	10	Te	.=	8, 67	9
18	R	5	30	120	10	Te	.=	23	23
19	S	1	5	20	3	Te	.=	4	4
20	T	5	10	40	2.880	Te	.=	487, 5	484
21	U	1	2	8	3	Te	.=	2	2
22	U'	5	5	20	2.880	Te	.=	484, 17	484
23	V	1	3	12	2	Te	.=	2, 5	3
24	W	10	15	60	20	Te	.=	15	15
25	X	5	15	60	30	Te	.=	15, 83	16

Note : time in minutes

From the table above, the expected time period (Te) is 1,742 minutes, which is equivalent to 29,033 hours, equivalent to 6 (six) days. Then the variant values are calculated in the table below:

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Table 8. Variance Calculation

Activity	a	b	Variant Formula	Result
A	1	1		-
B	10	30		11
C	60	300		1.600
D	-	-		-
E	-	-		-
F	-	0		-
G	5	360		3.501
H	10	10		-
I	30	120		225
J	60	210		625
K	10	300		2.336
L	5	10		1
M	5	30		17
N	5	10		1
O	10	90		178
P	3	10		1
Q	2	10		2
R	5	10		1
S	1	3		0
T	5	2.880		229.601
U	1	3		0
U'	5	2.880		229.601
V	1	2		0
W	10	20		3
X	5	30		17

$$\text{Variance} = \left(\frac{tb - ta}{6}\right)^2$$

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Furthermore, from the calculation of standard deviations, the standard deviation values are: √467.720,720 = 683,901 minutes, equivalent to 11.40. Calculating the normal-Z-value requires the desired completion time (Tx) and the expected time period (te) critical activities. The time (Tx) is 18 working days according to the price. By using the normal-Z-value table, the probability of the overall activity being completed is 0.8531 or equal to only 85.31%

CONCLUSION

Time required to complete 1 (one) site plan approval file for an undeveloped building

1. Fastest time (a): 494 minutes is equivalent to 8 hours, equivalent to 2 days;

2. Longest time (b): 20,089 minutes is equivalent to 335 hours, equivalent to 67 days;

3. Frequent times (m): 12,115 minutes equivalent to 202 hours, equivalent to 40 days.

The results of the schedule using the PERT method is a period of 38 days. With alternatives that can be done to reach the time (Tx) of 18 working days in accordance with the provisions, the overall probability that the activity can be resolved is at 0.8531 or 85.31%.

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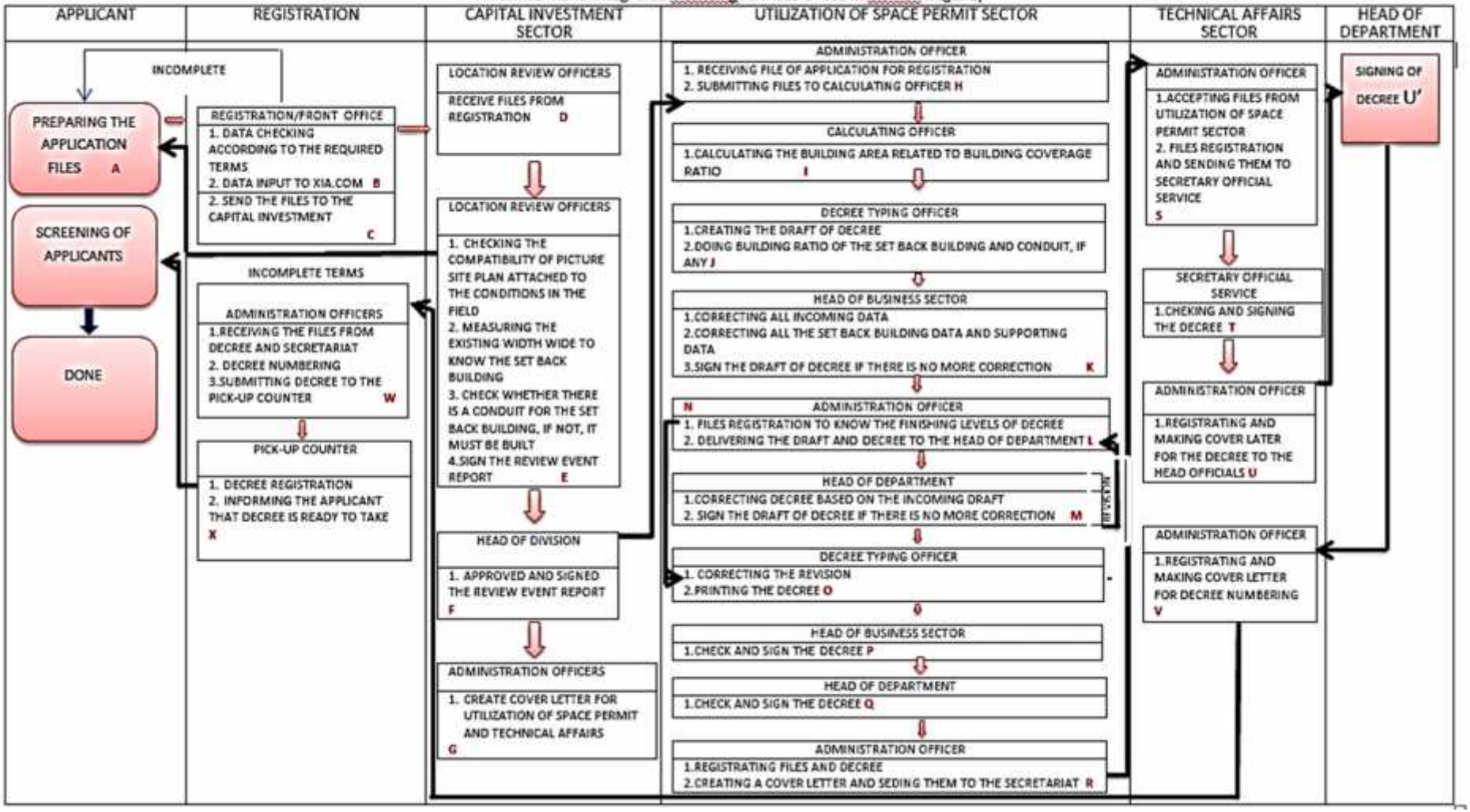
APPENDIX

Tabel, Flow Chart of Recommended Site Plan Application File
Investment and Integrated Licencing Services Office In Sleman Regency



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