

Study of Scale Priority Maintenance on the Road in Central Lombok Reviewed From Types of Handling Using AHP Method

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Abstract: Roads are basic infrastructures that must be supported by sufficient regional economies to take place, but the limited availability of APBD funds and regional experience in budgeting is still minimal, hence the lack of funds for road handling can not be avoided. This indicates that there is a need for clear guidance for the regions in selecting the types of work to allocate funds, especially to finance the maintenance of road infrastructure, at least that in order for road funds to remain adequate, at least existing roads can be maintained so that they can operate properly.

The purpose of this research is to identify road network, road damage and type of road maintenance work. Establish choice of road criteria based on job type and level of road damage. Arrange the priorities of work types and cost budget plans based on the availability of funds in Central Lombok District. This research focuses on the goal by giving a good and clear direction. The data of central Lombok district road used in this thesis research is the road data in accordance with the decision of the Regent of Central Lombok Regency on the Stipulation of the Status of the Road Area of Central Lombok Regency No. 327 of 2012 dated July 11, 2012, local road class, with the type of handling / surface asphalt on the road damaged condition.

Method of determining priority scale of maintenance handling by using Analytical Hierarchy Process (AHP) method, which is paired with SK No.77 / KPTS / Db / 1990 Director General of Highways. The result of the maintenance of the road with the priority scale of work type in Central Lombok Regency is the result of weighting criteria based on perception of respondent of stakeholder representative of Public Works Department, Department of Transportation and Community resulted weight of successive handling criteria according to ranking as: Alternative IV (Maintenance Reconstruction) 25,8 %, Alternative III (Maintenance of Increase) 25.3%, Alternative II (Maintenance Increase) 25.4% and Alternative I (Routine Maintenance) weighing 23.5%. Based on the analysis results, in Table 5.14 it can be seen that the consistency ratio (CR) is 0.10% <10%, inconsistency value less than 10%, the degree of consistent satisfaction means AHP method can be optimum result. Alternative IV is the highest value so that the most appropriate handling priority to be done in the priority maintenance of road handling in Central Lombok

Keywords: Study on Maintenance, District Road, and AHP..

Preliminary

With the Government Regulation of the Republic of Indonesia Number 34 Year 2006 regarding the Road mentioned also concerning the maintenance of roads in article 1, paragraph 8, and the distribution of Government authority listed in Article 59 paragraph 1. In addition, the assessment, research and development in the field of road covering aspects of planning, programming, technical planning, construction, operation and maintenance, materials and equipment technology, governance and supervision and control are contained in clause 82 paragraph 3 and explained again about road construction and handling program road network in article 83 and article 84, paragraph 3. And explained in more detail on the operation and maintenance of roads in Paragraph 6 of article 96-article 101.

The extent of road damage due to excessive overload and inadequate handling systems resulted in road damage before the technical life of the road was reached. This will require additional costs to maintain the road function and reduce the allocation of funds for other roads, so that ultimately the management of the entire road network will be disrupted. In addition, the biggest losses will be directly experienced by road users is the increase in travel time so that vehicle operating costs will be higher, as well as indirect consequences of the cost of transportation costs in the distribution of goods is increasing. With this new funding mechanism, some regions have difficulties in carrying out the planning and programming of road maintenance in their authority. This is as a result of the loss of funding sources that are usually determined allocation and the amount of its use from the center. Currently, the regions must

prepare their own road-handling programs (according to their authority based on road status) of the APBD whose share should be compromised by the availability of funds and funding needs for other sectors.

Roads are basic infrastructures that must be supported by a sufficiently sizable regional economy that can take place, but the limited availability of APBD funds and regional experience in budgeting is still minimal, hence the lack of funds for road handling can not be avoided. This indicates that there is a need for clear guidance for the regions in selecting the types of work to allocate funds, especially to finance the maintenance of road infrastructure, at least that in order for road funds to remain adequate, at least existing roads can be maintained so that they can operate properly.

Based on the above background, some problems related to the maintenance of maintenance work are as follows: The type of work and limited maintenance fund that can not meet the maintenance needs of all roads, so in determining the priority of handling must be done quickly and accurately. Road pavement will be more quickly damaged in the event of delay in handling the type of work that will lead to increased costs of vehicle operation and road maintenance.

Because this research is concentrated to develop a decision support system for determining the priority of regency road maintenance. On the basis of the above objectives of this study are: Can identify road network, road damage and type of road maintenance work in Central Lombok regency. Establish choice of road criteria based on job type and level of road damage in Central Lombok District. Arrange the priorities of work types and cost budget plans based on the availability of funds in Central Lombok District. District road infrastructure management agencies and related parties in determining priority maintenance and handling of types of maintenance work within one budget year in Central Lombok District. The results of this research become the basis of policy making improvement and maintenance of road network in Central Lombok Regency. This research focuses on the goal by giving a good and clear direction. The data of Central Lombok regency road used in this thesis research is road data in accordance with the decision of Regent of Central Lombok Regency no. 327 of 2012 dated July 11, 2012, local road class, with the type of handling / surface asphalt on the road damaged condition. Method of determining priority scale of maintenance handling by using Analytical Hierarchy Process (AHP) method, which is paired with SK No.77 / KPTS / Db / 1990 Director General of Highways.

Methodology

1. Research Stages

The stages in this study begin by conducting preliminary studies which include: regional study area, literature review, identification of data and software used. From the preliminary study conducted, followed by the identification of the problem so that it can be prepared the background of problem and problem formulation as well as determination of the purpose of this research. Further data collection is obtained either from primary data or from secondary data. Primary data in this study were obtained through questionnaires or interviews to the parties (stakeholders) who are competent in handling the road of Central Lombok regency. While secondary data in this research is obtained from data handling of road of Central Lombok Regency in fiscal year 2012-2016 and planning guidance of Central Lombok Regency according to SK No.77 / KPTS / Db / 1990 Directorate General of Highways. The next step will be determination of handling priority on Regency road with Analytical Hierarchy Process (AHP) method which begins with hierarchy arrangement that is by determining criteria and determining sub-criteria. We then performed a weighting analysis in the determination of the priority road sequence by the AHP method. The result of priority scale of handling of road maintenance of Central Lombok Regency obtained from AHP method will be juxtaposed with the priority scale based on Decree No. 77 / KPTS / Db / 1990 Directorate General of Highways.

2. Introduction Study

The activities undertaken in this preliminary study are basically to identify the availability of supporting means in conducting this research. These include selection of study sites, availability of data, availability of literature or reference literature and the availability of tools in this case software for performing data analysis. This is done considering a study is certainly limited by the availability of time and funds. The results of this preliminary study are as follows: Location of the study, ie 35 road segments in the region of Central Lombok District. Time of research, this research is done from morning at 07.00 until afternoon at 18.00 adjusted to government working hours. The research object was conducted in the Field of Public Works Office of Central Lombok Regency, Regional Development Planning Board (BAPPEDA) of Central Lombok Regency, Communication and Information Department of Central Lombok Regency, Member of Central Lombok Regency DPRD at Development Commission. Data planning of city road handling of 2012-2016 budget year

can be from Technical Planning Division BINAMARGA Public Works and Spatial Planning of Central Lombok regency. Reference literature or reference as the theoretical foundation is derived from several textbooks related to the AHP method and reference based on the Decree of Directorate General of Highways N0. 77 / KPTS / Db / 1990 on Technical Guidelines for Road Planning and Drawing of District Road Programs. The software as a tool used in performing the analysis can be used Microsoft Excel program.

3. Data Collection

Secondary data collection is to determine the priority scale of Central Lombok Regency road handling. Secondary data is obtained from the Central Lombok District government agency, namely BAPPEDA of Central Lombok Regency and Public Works Department and Spatial Planning of BINAMARGA Division of Central Lombok Regency. These data include: data on road conditions, traffic volume data, budget for handling of square meter road maintenance, policy and land use, and district road planning guidelines based on Decree no. 77 / KPTS / Db / 1990 Directorate General of Highways. Methods of secondary data collection are: Request data submitted in writing, the requested data is: The criteria used to determine the priority scale of handling maintenance of roads in Central Lombok regency. Data related to the criteria used for determining the priority scale of handling of regency road maintenance in Central Lombok Regency. The data must be in accordance with the 1 (one) indicator, then the data is recapitulated and compiled into each element of the district road handling group, with the objectives: As a basis for the preparation of hierarchical structures As a processed basis in determining the priority scale of handling of district road maintenance to be reviewed . A questionnaire was then prepared to be used as an instrument for collecting primary data. Design the questionnaire in this study is shown in Appendix B. In this study, the preparation of questionnaires based on the criteria determined by involving several competent stakeholders in road maintenance in Central Lombok are Head of Public Works and Spatial Planning of Central Lombok Regency, Head of BINAMARGA, Technical Staff from BAPPEDA of Central Lombok Regency. Scale of respondents' attitude in determining the priority of handling of regency road maintenance in Central Lombok Regency used the assessment scale of Saaty (1986). To facilitate the respondent in giving an answer to his judgment, the missionaries are arranged in intervals of 1 to 9 based on the paired preference values of Saaty (1986) and by circling / marking \surd on one of the numbers at the interval of the given judgment, each scale indicates the level of importance of the criteria indicator compared against the criteria indicator that covers it. In this research, the questionnaire distributed by direct interview to respondents who have duty, function and experience in handling maintenance and planning of regency road in Central Lombok Regency. The selected expert response consists of: Central Lombok Regency Government; (1 person), Head of BINAMARGA (1 person), Head of Maintenance and Rehabilitation of Road of BINAMARGA (1 person), Head of BINAMARGA Plan (1 person), Head of Development and Road Construction of BINAMARGA(1 person), Planning Section Staff of BINAMARGA (10 persons), Head of Spatial Planning at Public Works and Spatial Planning (1 person), Staff of Spatial Planning (5 persons), Head of Physical and Infrastructure at BAPPEDA (1 person) Staff of Physical and Infrastructure Field at BAPPEDA (2 persons) ,. Academician, Head of Transportation Laboratory of University of Mataram (1 person), Laboratory staff of TransportationUniversity of Mataram (1 person). Legislature. Member of Central Lombok Regency Commission C (1 person). Community Representative (Community Leader). Head of Dusun on each section of the road studied randomly selected (2 persons) / The time of questionnaires distributed to the respondent conducted for 2 (two) months.

It has been explained previously that in this study the primary data collection using questionnaire / interview method. Stages in doing questionnaires on the respondents in this study: Provide questions on the respondents in writing with the question model in the form of priority scale. Questionnaires were given to the respondents, then explained in general the intent and answer of each question on the questionnaire to be answered. Interviews are conducted in accordance with the time and place agreed by the respondents with the consideration: Time from the respondents to learn and understand the questions to be answered. The most free time to conduct an interview. Psychological burden of respondents when answering questions. Due to consideration in item 3.c the respondents are expected to answer the question when there is no psychological burden, so that the interview is only done on questions or questions that are confusing / confusing for the respondent. When interviewed, the respondent was asked whether the question will be confusing / doubting for the respondent what is not, and if there is any question that confuses the respondents, the interview can not be continued until the boundary of the respondent understands correctly the question to be answered. If there are questions of things that are still doubting / confusing the respondents then re-explanation of the questions will be answered. The result of hierarchy level assessment obtained from the respondent determines the weight of hierarchical level elements obtained from the hierarchical level respondents, if the respondent finds the result after being tested the consistent level (consistent ratio) the respondent answer exceeds the 100% threshold then

repeated the interview until the level of consistency $\leq 10\%$.

The data collected sourced from: obtained from the realization of Working Unit Budget Document (DASK) Department of Public Works and Spatial Planning of Central Lombok Regency of BINAMARGA Period 2012-2016. Qualitative data is data obtained from interviews with parties related to the object of research. Sampling Populations and Methods; According Sugiyono (1999: 72) Population is a generalization region consisting of objects / subjects that have certain qualities and characteristics set by researchers to be studied and then taken conclusions. Meanwhile, according to Bintoro (1996: 42) Population is a set of individuals / subjects are many, limited or unlimited. Based on the above understanding then the population of this study is the subject / individual objects are competent with regard to the object of research in related agencies in Central Lombok regency is based on what is said by Sugiyono by determining the size of a very practical sample, that is with table Krejcie. In this way there is no need for complicated calculations. Krejcie in performing the samples is based on a 5% error. So the samples obtained have 95% confidence in the population.

Tabel 1. Krejcie Table (Sample Calculation)

N	S	N	S	N	S
10	10	220	140	1,200	291
15	14	230	144	1,300	297
20	19	240	148	1,400	302
25	24	250	152	1,500	306
30	28	260	155	1,600	310
35	32	270	159	1,700	313
40	36	280	162	1,800	317
45	40	290	165	1,900	320
50	44	300	169	2,000	322
55	48	320	175	2,200	327
60	52	340	181	2,400	331
65	56	360	186	2,600	335
70	59	380	191	2,800	338
75	63	400	196	3,000	341
80	66	420	201	3,500	346
85	70	440	205	4,000	351
90	73	460	210	4,500	354
95	76	480	214	5,000	357
100	80	500	217	6,000	361
110	86	550	226	7,000	364
120	92	600	234	8,000	367
130	97	650	242	9,000	368
140	103	700	248	10,000	370
150	108	750	254	15,000	375
160	113	800	260	20,000	377
170	118	850	265	30,000	379
180	123	900	269	40,000	380
190	127	950	274	50,000	381
200	132	1000	278	75,000	382
210	136	1100	285	100,000	384

N = Population S = Sample
Source :Sugiyono (2005 : 63)

The variables used in this study consist of criteria / considerations that become the priority background of handling of regency road maintenance in Central Lombok Regency. Variables in this study will be formulated in the form of hierarchical structure after secondary data are obtained. In this research, the hierarchy level preparation used in Analytical Hierarchy Process (AHP) method consists of 3 (three) levels: Level I (Goal) is to determine the priority scale of handling of regency road maintenance in Central Lombok Regency. Level II (Criteria) consists of several criteria in determining the priority of road maintenance . The criteria are Road Condition (A), Traffic Volume Factor (B), Economic Factor (C), Land Use Factors (D). Level III (Development of level II, called Sub criteria of road conditions, traffic volume, economy, obtained from SK No. 77 / KPTS /

Db / 1990 Directorate General of Highways, while Sub criteria of land use is obtained from RTRW of Central Lombok Regency Year 2011.

Data analysis is an integrated job after the data obtained, then collected to be recapitulated as needed and then analyzed by using AHP method and compare the results of the analysis with the result of analysis obtained based on the Decree no. 77 / KPTS / Db / 1990 Directorate General of Highways. Subsequently obtained results that can provide a clear picture to determine the choice of priority scale handling road maintenance of both methods. Flowchart of data analysis of priority scale determination of road maintenance of regency in Central Lombok Regency.

Results and Discussion

To be able to choose alternative priority of road maintenance based on the type of work as expected in road maintenance management in Central Lombok Regency, conducted by AHP method become variable to determine priority scale in choosing priority of road maintenance based on job type. The highest variable of importance will be the main consideration, and then followed by the other variables.

Stakeholder perceptions were obtained using a questionnaire, as for the stakeholder arrangements that are sources in this study are presented in Table 2 below.

Table 2. Average rating result rating criteria priority level

No	Response Code	Department	Employment
1	R1	DPU Central Lombok Regency	Head of DivisionBINAMARGA PU Central Lombok Regency
2	R2	DPU Central Lombok Regency	Chief Section ofConstruction of Roads and Bridges BINAMARGA Central Lombok Regency
3	R3	DPU Central Lombok Regency	Chief Section of Enhancement of Roads and Bridges BINAMARGA Central Lombok Regency
4	R4	DPU Central Lombok Regency	Chief Section of Rehabilitation of Roads and Bridges BINAMARGA Central Lombok Regency
5	R5	DPU Central Lombok Regency	Engineering staff of Construction of Roads and Bridges BINAMARGA Central Lombok Regency
6	R6	DPU Central Lombok Regency	Engineering staff of Rehabilitation of Roads and Bridges BINAMARGA Central Lombok Regency
7	R7	DPU Central Lombok Regency	Chief Section of Enhancement of Roads and Bridges BINAMARGA Central Lombok Regency
8	R8	BAPPEDA of central Lombok regency	Head of DivisionPhysical BAPPEDA central of Lombok
9	R9	BAPPEDA of central Lombok regency	Engineering staff of physical division of BAPPEDA
10	R10	DISHUBKOMINFOof central Lombok	Head of UPTD RentengTerminal
11	R11	DISHUBKOMINFOof central Lombok	DISHUBKOMIMFO
12	R12	DISHUBKOMINFOof central Lombok	Head of Divisionland transportation
13	R13	DPRD of central Lombok regency	DISHUBKOMIMFO
14	R14	DPU Province NTB	Head of UPTD Traffic
15	R15	DPU Province NTB	DISHUBKOMIMFO
16	R16	DPU Province NTB	Staff ofCommittee III DPRD Central of Lombok
			Head of Division. BINAMARGA DPU Province NTB
			Chief ofRoad and Bridges Planning BINAMARGA DPU Province NTB
			Engineering staff of road and bridge

To analyse from respondents, assisted by expert choice computer program 11. The first pairwise comparison is done for elements at level I (criteria I), taking into account how important the criteria are to the selection of work types: routine, periodic, reconstruction in the priority of road maintenance handling in Central Lombok Regency of West Nusa Tenggara Province (NTB).

From the results of questionnaires with computer programming calculations expert choice 11, then influential factors can be prioritized in accordance with Table 3 as follows.

Table 3. Average rating of priority rating criteria level rating

No	Impact Factor	Percentage of Assessment (%)	Ranking
1	Road Structure Factor	15,50	5
2	Availability of Fees	20,60	3
3	Traffic Volume Factors	18,50	4
4	Service	21,10	2
5	Public Demands	24,30	1
Consistency Ratio (CR)		0,335	

Source: Calculation result

Based on the calculation in Table 3 it can be seen that the value of consistency ratio (CR) is 0.335% <10%, inconsistency value less than 10%, so it can be concluded that the level of consistency can be justified, with AHP method can be forwarded. The public demand factor has the highest level of importance in the priority of road maintenance handling of other variables.

The result of priority assessment of conformity to the alternative based on the relationship with each sub criterion can be done below. Results of computer program analysis expert choice 11.

1) Condition of Good Road Structure (a1)

Conformity rating of alternative I-IV, on road maintenance carried out on road maintenance at Central Lombok Regency, in conjunction with road structure conditions. The average results of the assessment on respondent perceptions are presented in Table 4.

Table 4. Average result of alternative assessment of sub variable condition of good condition of road structure.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	21,0	4
2	Alt.II (Maintenance Periodical)	25,6	3
3	Alt.III (Maintenance Enhancement)	26,3	2
4	Alt.IV (Maintenance Reconstruction)	27,1	1
Consistency Ratio (CR)		0.362	

Source: Calculation result

Based on the calculation in Table 4 it can be seen that the value of consistency ratio (CR) is 0.362% <10%, inconsistency value is less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative IV is the highest value so it becomes the main handling priority.

2) Condition of Damaged Road Structure (a2)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on the perceptions of respondents are shown in Table 5.

Table 5. Average result of alternative assessment of sub variable condition of road structure of damaged condition.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	21,0	3
2	Alt.II (Maintenance Periodical)	25,6	2
3	Alt.III (Maintenance Enhancement)	26,3	1
4	Alt.IV (Maintenance Reconstruction)	27,1	4
Consistency Ratio (CR)		- 0.753	

Source: Calculation result

Based on the calculation in Table 5 it can be seen that the value of consistency ratio (CR) is $-0.753\% < 10\%$, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative III is the highest value so it becomes the main handling priority.

3) Availability of 100% Cost (b1)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on respondents' perceptions are shown in Table 6.

Table 6. Average result of alternative assessment of sub variable of 100% cost availability.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	17,6	4
2	Alt.II (Maintenance Periodical)	24,5	3
3	Alt.III (Maintenance Enhancement)	28,1	2
4	Alt.IV (Maintenance Reconstruction)	29,8	1
Consistency Ratio (CR)		7	

Source: Calculation result

Based on the calculation in Table 6 it can be seen that the value of consistency ratio (CR) is $7\% < 10\%$, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative IV is the highest value so it becomes the main handling priority.

4) Availability of Less Cost (b2)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on perceptions of respondents are shown in Table 7.

Table 7. Average result of alternative assessment of sub variable availability of less cost.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	22,6	4
2	Alt.II (Maintenance Periodical)	26,2	2
3	Alt.III (Maintenance Enhancement)	27,9	1
4	Alt.IV (Maintenance Reconstruction)	23,3	3
Consistency Ratio (CR)		- 0.753	

Source: Calculation result

Based on the calculation in Table 7 it can be seen that the value of consistency ratio (CR) is $-0.753\% < 10\%$, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative III is the highest value so it becomes the main handling priority.

5) Traffic Condition (C1)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on perceptions of respondents are shown in Table 8.

Table 8. Average result of alternative assessment of sub variable of solid traffic condition.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	23,9	3
2	Alt.II (Maintenance Periodical)	25,3	2
3	Alt.III (Maintenance Enhancement)	20,9	4
4	Alt.IV (Maintenance Reconstruction)	29,9	1
Consistency Ratio (CR)		7	

Source: Calculation result

Based on the calculation in Table 8 it can be seen that the value of consistency ratio (CR) is $7\% < 10\%$, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative IV is the highest value so it becomes the main handling priority.

6) Low Traffic Conditions (c2)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on respondents' perceptions are shown in Table 9.

Table 9. Average result of alternative assessment of sub variable of light traffic condition.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	23,9	4
2	Alt.II (Maintenance Periodical)	25,3	2
3	Alt.III (Maintenance Enhancement)	26,3	1
4	Alt.IV (Maintenance Reconstruction)	24,5	3
Consistency Ratio (CR)		-75,285	

Source: Calculation result

Based on the calculation in Table 9 it can be seen that the value of consistency ratio (CR) is $-75.285\% < 10\%$, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative III is the highest value so it becomes the main handling priority.

7) Fitting Service Function (d1)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on respondents' perceptions are shown in Table 10.

Table 10. The average result of the alternative assessment of the sub variable of the service is not in accordance with its function.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	25,9	1
2	Alt.II (Maintenance Periodical)	25,5	2
3	Alt.III (Maintenance Enhancement)	23,8	4
4	Alt.IV (Maintenance Reconstruction)	24,8	3
Consistency Ratio (CR)		0,041	

Source: Calculation result

Based on the calculation in Table 10 it can be seen that the value of consistency ratio (CR) is 0.041% <10%, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. The highest alternative is the highest priority of handling.

8) Service Not Functioning (d2)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on respondents' perceptions are shown in Table 11.

Table 11. Average results of alternative appraisal of service sub-variables are not functional.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	22,8	4
2	Alt.II (Maintenance Periodical)	24,7	3
3	Alt.III (Maintenance Enhancement)	26,2	2
4	Alt.IV (Maintenance Reconstruction)	26,3	1
Consistency Ratio (CR)		0,041	

Source: Calculation result

Based on the calculation in Table 11 it can be seen that the value of consistency ratio (CR) is -75.285% <10%, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. The highest alternative is the highest priority of handling.

9) Public Demands (risk of minor accident) (e1)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on respondents' perceptions are shown in Table 12.

Table 12. Average results of alternative appraisal of service sub-variables are not functional.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	25,0	3
2	Alt.II (Maintenance Periodical)	26,1	1
3	Alt.III (Maintenance Enhancement)	23,9	4
4	Alt.IV (Maintenance Reconstruction)	25,1	2
Consistency Ratio (CR)		0,207	

Source: Calculation result

Based on the calculation in Table 12 it can be seen that the value of consistency ratio (CR) is 0.207% <10%, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. Alternative II is the highest value so it becomes the main handling priority.

10) Community Demands (maintenance management) (e2)

To know the level of conformity of the appropriate road maintenance alternatives applied in Regency Lombok Tengah which is related to the condition of damaged road structure. The results of computer program analysis expert choice 11 can be seen in appendix III. The average results of the assessment on respondents' perceptions are shown in Table 13.

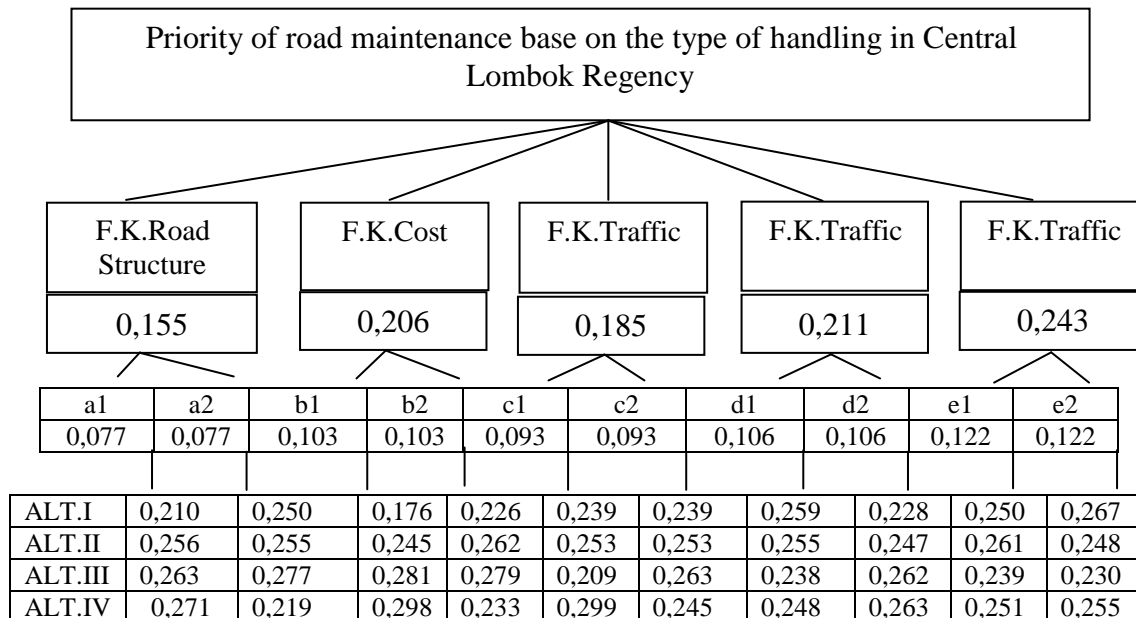
Table 13. Average results of the alternative appraisal of service sub-variables are not appropriate for their function.

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	26,7	1
2	Alt.II (Maintenance Periodical)	24,8	3
3	Alt.III (Maintenance Enhancement)	23,0	4
4	Alt.IV (Maintenance Reconstruction)	25,5	2
Consistency Ratio (CR)		0,207	

Source: Calculation result

Based on the calculation in Table 13 it can be seen that the value of consistency ratio (CR) is -75.285% <10%, inconsistency value less than 10%, the degree of consistency satisfy this means AHP method can be optimum result. The highest alternative is the highest priority of handling.

The weighted result of paired comparison of each criterion and sub criteria on AHP hierarchy structure is shown in Figure 1. Calculation result using Software Expert Choice 11 tool.



Gambar 1. Weighted Hierarchy Structure

To obtain an alternative percentage priority result is done by combining the factors and doing the blend to achieve the purpose of synthesize and make a choice on with respect to goal. After doing synthesis in expert choice computer program then got percentage from each alternative shown in Table 14.

Table 14. Final result of alternative selection

No	Description	Percentage of Assessment (%)	Ranking
1	Alt.I (Maintenance Routine Sub)	23,5	4
2	Alt.II (Maintenance Periodical)	25,4	2
3	Alt.III (Maintenance Enhancement)	25,3	3
4	Alt.IV (Maintenance Reconstruction)	25,8	1
Consistency Ratio (CR)		0.10%	

Source: Calculation result

Based on the analysis results, in Table 14 it can be seen that the value of consistency ratio (CR) is 0.10% <10%, inconsistency value less than 10%, the degree of consistency satisfying this means AHP method can be optimum result. Alternative IV is the highest value so it becomes the most appropriate handling priority to be done in the priority maintenance of road handling in Central Lombok Regency

Conclusions and Recommendations

Conclusion

Based on the results of the analysis and all discussions that have been previously described, it can be concluded that:

1. From the road network data after identified, the asphalt road damage on the road segments in Regency Lombok Tengah to get handling as needed. The result shows that from 249 road segment with road length 809,879 km, it has obtained good road condition with length 554,295 Km, medium road with medium length 189,780 Km, damaged and severely damaged road condition with length 65,804 km.
2. The priority analysis of road maintenance in Central Lombok Regency by using Analytical Hierarchy Process (AHP) method can be used to determine the priority sequence of road segments that will get priority maintenance handling, by dividing the subject matter into 4 (four) elements which is the criterion in priority maintenance of road handling. The highest priority criteria are reconstruction condition with weight 25,80%, second priority periodic maintenance with weight 25,40%, third priority increase with weight 25,30%, and last routine maintenance with weight 23,50%. As for the criteria of service conditions and community demands have little influence that is considered less important in determining the priority of maintenance of road handling.
3. Priority of cost budget shall be prepared on the basis of ranking of priority maintenance work of road handling according to the need with the main priority of routine maintenance, periodic maintenance, upgrading and last reconstruction of the road segment in accordance with the type of work and fund available every fiscal year. The results of the analysis show that the weighting and assessment of the criteria can indicate the order of priorities in accordance with the existing conditions. Implementation of job type and cost budget with 100% usage, availability of cost, indicating the condition of budget cost owned by Regency Government of Central Lombok Central limited and not necessarily every budget year.

Suggestion

On the basis of result obtained in this study, to obtain better results then suggestions that can be proposed in accordance with the priority maintenance of road handling of the type of work and budget available cost is.

1. This research needs to be developed further and more detailed examination of the criteria and criteria variables that are used for maintenance priority of work type and budget of road maintenance cost.
2. There is a need to study the characteristics of each type of complete damage (amble and groove) to be able to determine the correct class of damages (good, moderate, damaged, and severely damaged).
3. In similar research should be supported by data accurate and adequate for each type of damage so that more road damage can be obtained representative, can be predicted damage to the road in several years review to produce long-term management of road handling.