INTERNATIONAL CONFERENCE

ENGINEERING & TECHNOLOGY DEVELOPMENT

UBL ICETD

2013

The Second International Conference on Engineering and Technology Development

2ⁿᵈ ICETD 2013

27, 28, 29 August 2013, Bandar Lampung, Indonesia

PROCEEDINGS

UBL
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Faculty of Engineering and Faculty of Computer Science,
Bandar Lampung University (UBL), Indonesia

2ⁿᵈ ICETD 2013

The Second International Conference On Engineering And Technology Development

28 -30 January 2013
Bandar Lampung University (UBL)
Lampung, Indonesia

PROCEEDINGS

Organized by:

2nd International Conference on Engineering and Technology Development   *ISSN 2301-6590*
(ICETD 2013)
Universitas Bandar Lampung
Faculty of Engineering and Faculty of Computer Science

PREFACE

The Activities of the International Conference is in line and very appropriate with the vision and mission of Bandar Lampung University (UBL) to promote training and education as well as research in these areas.

On behalf of the Second International Conference on Engineering and Technology Development (2nd ICETD 2013) organizing committee, we are very pleased with the very good response especially from the keynote speaker and from the participans. It is noteworthy to point out that about 80 technical papers were received for this conference.

The participants of the conference come from many well known universities, among others : University Kebangsaan Malaysia – Malaysia, APTIKOM – Indonesia, Institut Teknologi sepuluh November – Indonesia, Surya Institute – Indonesia, International Islamic University – Malaysia, STMIK Mitra Lampung – lampung, Bandung Institut of Technology – Bandung, Lecture of The Malahayati University, B2TP – BPPT Researcher – lampung, Starch Technology Center – Lampung, Universitas Islam Indonesia – Indonesia, Politeknik Negeri Malang – Malang,University of Kitakyushu – Japan, Gadjah Mada University – Indonesia, Universitas Malahayati – Lampung, Lampung University – lampung, Starch Technology Center – Lampung, Universitas Riau – Riau, Hasanuddin University – Indonesia, Diponegoro University – Indonesia, King Abdulaziz University – Saudi Arabia, Parahyangan Catholic University – Indonesia , National Taiwan University– Taiwan, Surakarta Christian University – Indonesia, Sugijapranata Catholic University – Indonesia, Semarang University – Indonesia, University of Brawijaya – Indonesia, PPKIA Tarakanita Rahmawati – Indonesia, Kyushu University, Fukuoka – Japan, Science and Technology Beijing – China, Institut Teknologi Sepuluh Nopember – Surabaya, Researcher of Starch Technology Center, Universitas Muhammadiyah Metro – Metro, National University of Malaysia – Malaysia.

I would like to express my deepest gratitude to the International Advisory Board members, sponsor and also to all keynote speakers and all participants. I am also gratefull to all organizing committee and all of the reviewers who contribute to the high standard of the conference. Also I would like to express my deepest gratitude to the Rector of Bandar Lampung University (UBL) who give us endless support to these activities, so that the conference can be administrated on time

Bandar Lampung, 29 August 2013-08-26

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2nd ICETD 2013

The Second International Conference
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28 -30 January 2013

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Table Of Content

Keynote Speaker

Speaker

2ⁿᵈ International Conference on Engineering and Technology Development   *ISSN 2301-6590*
(ICETD 2013)
Universitas Bandar Lampung
Faculty of Engineering and Faculty of Computer Science

2ⁿᵈ International Conference on Engineering and Technology Development   *ISSN 2301-6590*
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Universitas Bandar Lampung
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2nd International Conference on Engineering and Technology Development   *ISSN 2301-6590*
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Universitas Bandar Lampung
Faculty of Engineering and Faculty of Computer Science

CHARACTERISTICS GENERATION TRAFFIC PATTERNS AND MOVEMENT IN RESIDENTIAL AREA (CASE STUDY WAY KANDIS RESIDENTIAL BANDAR LAMPUNG)

Fery Hendi Jaya, Juniardi,
Master of Civil Engineering, Graduate School, University of Bandar Lampung, Jl. Zaenal Abidin Pagar Alam 26 Bandar Lampung, 35142, Indonesia

Abstract-*Prospectus population growth in urban areas is growing rapidly due to the process of human activity, in conjunction with an increase in their subsistence efforts. The most important point that is on the rise residential transportation occurs. Housing is a basic need that must be met in addition to food and clothing, housing placement for the residents of the area will stimulate the movement patterns of the population as well as being the dominant factor will cause a rise of transport traffic on the road network in its path. Those factors that arise due to the influence of family characteristics such as the number of households, number of family members, family members aged> 7 years, work, school, income, vehicle ownership. If this is not observed and handled in particular will result in a level of service characterized by decreased traffic congestion, air pollution, traffic violations, ethical decline in travel, especially economically unprofitable. Therefore, the problems and the further development of the Area Housing Way Kandis Bandar Lampung to improve services in the emerging field of transport, traveling population of 694.71 Total Trip / day may affect the occurrence of traffic jams on the main door Jl. Ratu Dibalau Toward By Pass (towards T.Karang) of 47.87%, 23.53% passed Jl. Ratu Dibalau Toward By Pass (right Rajabasa), 16.63% passed Jl. Damar Island towards Sukarame (two- lane way halim), 7.91% pass through Jl. Damar Island to Teak Mulyo (direction metro) and 4.06% across Jl. Damar Island towards Sukarame (left Panjang). The number of trips that occur depending on the activities of people doing activities with different interests, calculations done indirectly because of the difficulty of calculating the movement or travel. Indirect calculations using an analytical model that results can be close to reality, traffic generation model is caused by the movement of the Perum Way Kandis Bandar Lampung is Y = 2.775 to 0.135 X1-0, 098 +0.179 X2 +0.035 X3 +0.094 X4 +0.120 X5 X6 +0.043 X7, from the equation that the effect on the character of the family who have aged> 7 years at 96.63%. To get an idea of traffic fluctuations that occur, enumeration traffic (Traffic Counting), the exit 3 for 2 (two) days, ie Wednesday that representing the working day and day of the week that represents a holiday. The calculation is performed on traffic coming out of the Housing Kandis Way Bandar Lampung, counting results showed peak time occurred in the morning at 07:00 to 8:00 and in the afternoon at 4:00 p.m. to 5:00 p.m., and holidays at 08:00 to 9:30 pm.*

2nd International Conference on Engineering and Technology Development (ICETD 2013)
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INTRODUCTION

Prospectus population growth in urban areas is growing rapidly due to the process of human activity, in conjunction with an increase in their subsistence efforts. The most important point regarding the settlements, Housing is a basic need that must be met in addition to food and clothing. Limitations of the city area is divided into several designation as residential, office, industrial, educational, trade in services, sports venues, tourist, until the green line ministry activities. But the fact remains land in the city, even though the population continues to grow from year to year.

The development of environmentally sustainable residential areas and comfortable is one of the fundamental factors for the needs of marginalized communities and need special attention, because of its location in a residential neighborhood structure of the city will be able to influence the A development of the city. Housing construction in major cities is mostly done in the suburbs. Similarly, in the city of Bandar Lampung location of residential development geared to suburban areas; Kemiling in the district, Raja Basa, Sukarame and Tanjung Seneng. Housing problems are shifted to the suburbs is . expected not just to be a community group or community spoting, but a transformation of social activities, economic and cultural.

Area housing complex if not pay attention to spatial placement can cause traffic generation models that can affect the balance of the transportation network of roads and movement patterns of the surrounding population. Transportation problems that arise, due to city population growth, increasing vehicle ownership, the implied increase in income residents of housing facilities built. If this is ruled out would result in a lower level of service and congestion. Congestion, it is a waste of fuel economy, exhaust emissions cause excessive environmental pollution (pollution) and other circuits causing

traffic violations, declining traffic ethics, and a high number of accidents.

In this study and the methods used in dealing with the problems and the further development of residential areas nor improve services in the field of transportation incurred, it would require special handling by knowing the traffic generation and behavioral patterns of population movement in the residential area, the following factors arising . Traffic generation and movement patterns of the population depends on the number of trips that occurred from an activity people have different interests. Because of the difficulty of calculating the movement or travel directly, then used the model calculation approach which can be expressed in mathematical equations (linear regression).

LITERATURE REVIEW

1. Analysis of Single Regresi

This analysis is to examine the relationship between independent variables (independent) with the dependent variable (dependent), ie, where each answer to each question on the questionnaire so as to get the magnitude of the correlation

2. Number of Heads Family Relationships
by Total Travel

From the results obtained there is a strong link between the number of family heads with the amount of travel in a home for a family head, which is about the size of R = 0.864, with a regression equation that is:

$$Y = 2{,}413 + 5{,}999 ....$$

where :

Y = Number of trip / day
X = Number of Households in the home

Table 1. Head of family relationships in a number of houses and Total Travel

VARIABLE-FREE (X)	R	R²	Sig.	Fcalc
KK NUMBER IN ONE THE HOUSE				
1 KK	0,864	0,747	0,000	94,288

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Universitas Bandar Lampung
Faculty of Engineering and Faculty of Computer Science

Tabel 2. Hubungan jumlah anggota keluarga usia > 7 tahun dan Jumlah Perjalanan

VARIABLE-FREE (X) NUMBER OF MEMBERS OF AGE > 7 Th IN THE HOUSE	R	R²	Sig.	Fcalc
2 Family Members	0,860	0,740	0,000	59,614
3 Family Members	0,856	0,733	0,000	66,004

Tabel 3. Hubungan Jumlah Anggota Keluarga yang Sekolah dan Jumlah Perjalanan

VARIABLE-FREE (X) NUMBER OF FAMILY MEMBERS THE SCHOOL	R	R²	Sig.	Fcalc
No	0,687	0,472	0,020	13,394
1 person	0,900	0,811	0,000	102,821
2 person	0,803	0,645	0,000	23,657

Table 4 Relationship to Total Revenue Total Travel.

VARIABLE-FREE (X) TOTAL REVENUE	R	R²	Sig.	Fcalc
> Rp.3.000.000,-	0,881	0,776	0,000	117,953

2ⁿᵈ International Conference on Engineering and Technology Development   *ISSN 2301-6590*
(ICETD 2013)
Universitas Bandar Lampung
Faculty of Engineering and Faculty of Computer Science

Table 5. Motorcycle Ownership relationship with Total Travel

VARIABLE-FREE (X) TOTAL OWNERSHIP MOTORCYCLE	R	R²	Sig.	Fcalc
1 Motorcycle	0,888	0,789	0,000	63,590
2 Motorcycle	0,795	0,632	0,000	42,878

Table 6 Relationship with Total Travel Car Ownership

VARIABLE-FREE (X) TOTAL OWNERSHIP CAR	R	R²	Sig.	Fcalc
Do not Have a Car	0,864	0,746	0,000	52,843
1 car	0,846	0,715	0,000	67,875

2ⁿᵈ International Conference on Engineering and Technology Development   *ISSN 2301-6590*
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Faculty of Engineering and Faculty of Computer Science

RESEARCH METHODOLOGY

1. Preliminary survey

Preliminary survey is a small-scale survey conducted before the actual survey. This survey is needed to get the initial data, such as population data needed to determine the minimum number of samples. Through a preliminary survey is expected to get secondary data or expected data from outside sources other than the research itself. Because secondary data makes the data supporting the research being carried out.

2. Reader survey

Literature study carried out as a basis of reference material in the manufacture of this thesis. Such as questionnaire development and reference materials that serve as the study of literature, contains Among the topics of transportation planning, traffic generation, transportation movement patterns in settlement and traffic in general which is needed to support research to obtain theories, formulas, basic principles and produce (output) the research goal is reached.

3. Determination of Total Sample

Respondents were drawn from residents of Bandar Lampung Housing kandis Way. The method used for sampling is Simple Random Sampling Method (Simple Random Sampling). Simple random sampling method is the method used to select a sample from a population in such a way that every member of the population has an equal chance to be taken as a sample.

When a sample of the population completely randomized so every individual in the sample frame will have the same opportunities to be taken as a sample. Nevertheless, in practice, random sampling is really hard to do perfectly. This is because the constraints that exist in the field and the limitations of the sample taker. Way sampling is done by randomly selected houses to be surveyed from the map of housing, if the house could not have been surveyed for some things then existing agreements between the parties involved in sampling is to replace the house on the right the house, but if the second alternative can not be implemented then the third alternative is to choose the house on the left was the first choice, this method is expected from samples obtained completely random so as to represent the amount of existing populations. Sample size determination is done by using the formula below :

$$n = \frac{NZ^2 p(1-p)}{Nd^2 + Z^2 p(1-p)}$$

Information :

n   = number of respondents (KK)
N   = number of population
Z   = Constants related
     with a level of confidence
p   = The proportion of the population (because it did not know, then that might be done is to find the sample size formula as much as possible and this can happen if the sample values obtained p (1-p) the greatest at p = 0.50

4. Testing the Research Model

Model testing was conducted to determine the reliability of a model. Which regression analysis model testing the following:
a. Correlation coefficient (r) Correlation coefficient is used to determine the relationship between the dependent variable, namely the number of trips per day with free variables. Relationship expressed strong when the value of r close to 1 or -1, while the relationship is expressed weakly if the value of r is close to zero (0)
b. Coefficient of determination (R²) Coefficient of determination used to know the contribution of independent variables on the dependent variable.
c. Test Statistic F
F values indicate the level of significance. If declared Fhitung> F, meaning all the independent variables and the dependent

2ⁿᵈ International Conference on Engineering and Technology Development   *ISSN 2301-6590*
(ICETD 2013)
Universitas Bandar Lampung
Faculty of Engineering and Faculty of Computer Science

variable has a significant relationship and effect of all independent variables on the dependent variable is real. Where the cross-classification analysis for model testing performed is :

- Chi-square test
   In order to determine the effect of the relationship between the variables to be reviewed. The decisions taken are from Chi-square value count against Chi-square table. If the Chi-square test> Chi-square table, means that there is a correlation between the two variables is.

- Correlation Test
   To determine the strength of the relationship between variables that were reviewed, while the value of the correlation coefficient based on the value of contingency. If the value is close to 1 or -1 then the relationship is strong and if it is close to zero (0) then the relationship is weak.

CONCLUSION

After a survey of 100 homes, and based on the analysis of traffic characteristics and Pattern Generation Movement By Regional Housing Way Kandis Bandar Lampung can be summed up as follows:
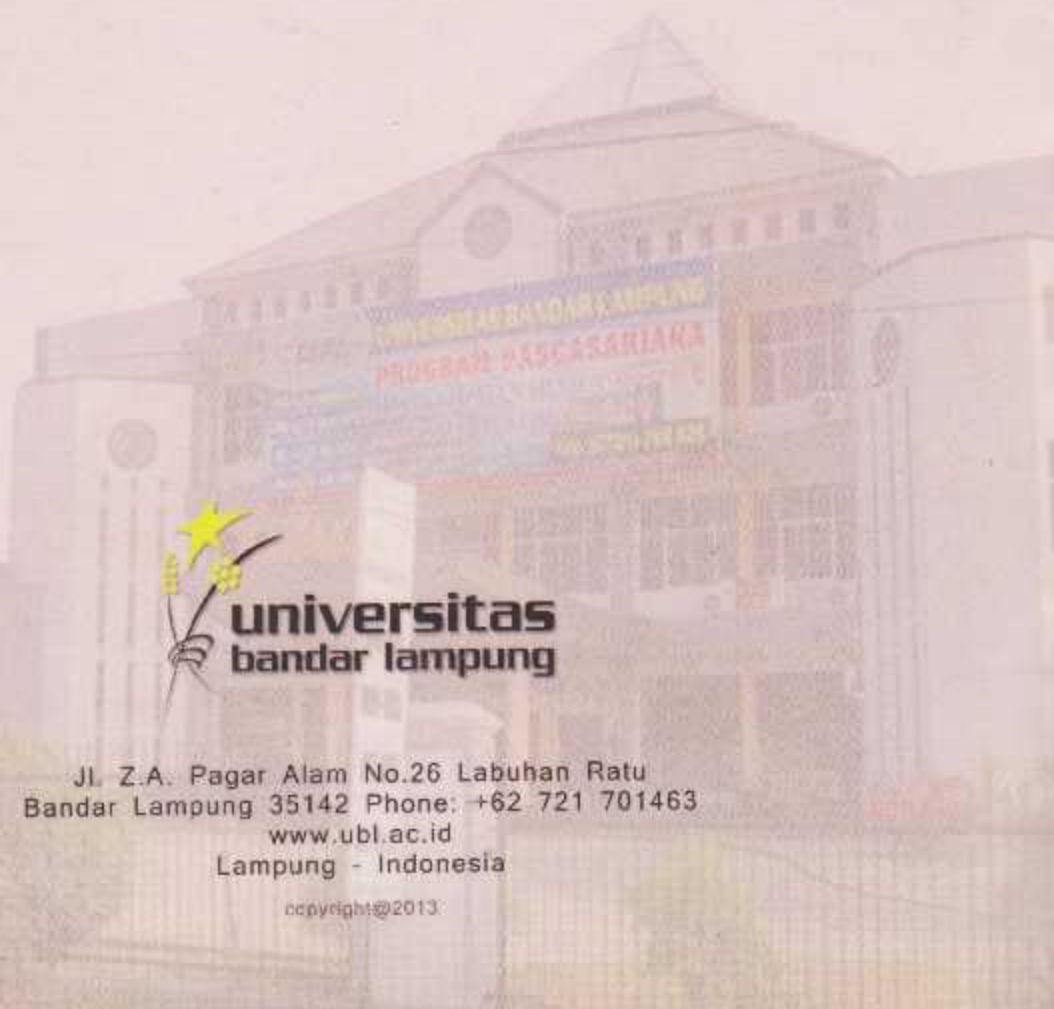
1. Housing occupants in Way Kandis Bandar Lampung, as much as 90% occupied by one (1) Head of Family.
2. Data from a survey of 100 homes (questionnaires) are deployed, the number of inhabitants amounted to as many as 475 people of which 96.63% were family members aged> 7 years, and 41% of family members totaling 3.
3. Number of Housing Education Level population Way Kandis 37.15% and 27.21% high school educated Bachelor.
4. Most (61%) income residents in Way Kandis Bandar Lampung Housing> Rp. 3.000.000, -
5. Number of Motorcycle Ownership Housing residents Way Kandis

Bandar Lampung as much as 92%, of which 49% has at most 2 motors and 59% have 1 (one) car.
6. The route through which housing residents Way Kandis Bandar Lampung, 47.87% passed Jl. Ratu Dibalau Toward By Pass (straight T.Karang), 23.53% passed Jl. Ratu Dibalau Toward By Pass (right Rajabasa), 16.63% passed Jl.Pulau Damar toward Sukarame (two- lane way halim), 7.91% pass Jl.Pulau Damar to Jati Mulyo (direction metro) and 4.06 % across Jl. Damar Island towards Sukarame (left Panjang)
7. Generated Model & Characteristics
   The traffic generated is:
   $Y = 2{,}775 - 0{,}135 X1 - 0{,}098 X2 + 0{,}035 X3 + 0{,}179 X4 + 0{,}120 X5 + 0{,}094 X6 + 0{,}043 X7$

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