ABSTRACT

Name	:	Firnando Akbar Prabowo
NIM	:	55720120029
Study Program	:	*Master of Civil Engineering*
Tittle	:	*"Green Toll Road Dynamis Modeling Based on Value Engineering and Life Cycle Cost Analysis to Improve Green Road Cost Performance on Toll Road"*
Councillor	:	Dr. Ir. Albert Eddy Husin, M.T.

Toll road are public road that are required to pay, the construction of toll road has a detrimental effect on the surrounding environment. Toll road planning is required to apply the green concept as a solution to minimize the cost of value engineering. As well as the life cycle cost analysis method for validating cost returns carried out in green planning on toll road. In this study the authors discuss the increase in green cost performance on toll road using value engineering and life cycle cost analysis with structural equation modeling-part least squares to obtain influential factors. Data were obtained from distributing questionnaires for processing so that the most influential factors were produced, namely support management and green road items as well as methods by processing data on structural equation modeling-part least squares as evidenced in case studies on dynamic systems. The green toll road concept for toll road development which is made of dynamic modeling of running results gets 74% points from the Gold rating with a cost of 201,027,000 and can save costs carried out by the value engineering method of 10.9% of the cost of green road with a payback of 3 months 8 month. So the total green road costs incurred are 4.4% of the total development costs toll road.

KEYWORDS: *Toll Road, Green Road, Value Engineering (VE), Life Cycle Cost Analysis(LCCA), Structural Equation Modelling-Part Least Square(SEM-PLS), Dynamic Modeling*

ABSTRAK

Nama	:	Firnando Akbar Prabowo
NIM	:	55720120029
Program Studi	:	Magister Teknik Sipil
Judul	:	"Pemodelan Dinamis *Green Toll Road* Berbasis *Value Engineering* dan *Life Cycle Cost Analysis* untuk Peningkatan Kinerja Biaya Green Road pada Jalan Tol"
Dosen Pembimbing	:	Dr. Ir. Albert Eddy Husin, M.T.

Jalan tol adalah jalan umum yang diwajibkan membayar, pembangunan jalan tol berdampak kerusakan bagi lingkungan sekitar. Perencanaan jalan tol diwajibkan menerapkan konsep *green* sebagai solusinya untuk meminimalisir biaya dilakukan *value engineering*. Serta metode *life cycle cost analysis* untuk validasi pengembalian biaya yang dilakukan dalam perencanaan green pada jalan tol. Dalam penelitian ini penulis membahas peningkatan kinerja biaya green pada jalan tol menggunakan *value engineering* dan *life cycle cost analysis* dengan structural equation modelling-part least square untuk mendaptkan factor factor yang berpengaruh. Didapatkan data dari penyebaran quizsioner untuk pengolahan sehingga dihasilkan fator paling berpengaruh *yaitu support management* dan item *green road* serta metode dengan pengolahan data pada *structural equation modelling-part least square* dibuktikan pada studi kasus pada model dinamis. Konsep *green* road pembangunan jalan tol yang dibuat pemodelan dinamis hasil *running* mendapatkan point 74% hasil rating Gold dengan biaya sebesar 201.027.000 serta dapat menghematan biaya yang dilakukan oleh metode *value engineering* sebesar 10,9% dari biaya green road dengan pengembalian waktu 3 bulan 8 bulan. Jadi total biaya *green road* yang dkeluarkan sejumlah 4,4% dari total biaya pembangunan jalan tol.

Kata Kunci : Jalan Tol, *Green Road, Value Engineering* (VE), *Life Cycle Cost Analysis* (LCCA), *Structural Equation Modelling-Part Least Square* (SEM-PLS), Model Dinamis.