

# Models Transfer Mode on the Motorcycle Commuter Rail User

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**Abstract:-** In some decades in developing countries, the public interest by motorcycle indicates numbers far exceed other modes of transportation. In fulfilling wishes to move from place to place, constrained by motorcycle mileage. Commuter rail transportation distance is most in demand by urban communities. With the increasing number users are using the bike commuter rail so it needed the transfer mode model of motorcycle users in Jabodetabek commuter train users, using dynamic analysis so that users of motorcycles and commuter rail operations more effective and efficient.

**Keywords:-** Commuter, Motorcycle, Rail Transportation, Dynamic analysis

## I. INTRODUCTION

Traffic congestion is a problem faced by urban residents, primarily in developing countries. It not only result of limited mass transit, but also many other problems, such as low incomes, limited human resources, lack of transportation budget, quality and quantity of data relating to the limited transport, rapid urbanization, poor discipline, and lack of planning and control of the transportation problem. one of its functions is to provide facilities for the exchange of goods and services between locations and centers of economic activity. This led to the movement of goods and people. As for the size, shape, structure, and the efficiency of the urban transport system is affected by.

Modes used Jabodetabek commuter community to reach destination including Train of Electric Circuits (KRL) also called Jabodetabek commuter line, serving approximately 400,000 passengers per day (Dishub RI 2010). KRL Jabodetabek commuter line is a mode that has been chosen by the commuters because it is easy, cheap, safe and anti-jams.

Operations of commuter rail in Jabodetabek transportation system is still away from optimal. The gap between supply and demand for commuter rail is very evident in some areas. Among the issues considered significant role affecting not optimal commuter train is a commuter rail integration with other public transport modes have not been systematically established. Shortage of transport capacity on the feeder shuttles train in Station Town, Gambir, Tanah Abang, Depok, Bogor, to improve the efficiency and effectiveness of urban transport systems. Urban communities are likely to opt for speed commuter train collided with a latency of the existence of adequate feeder, making people make the bike as a feeder to get to the nearest train station conveniently his residence.

The American Planning Association, planning and urban design standards, states that the largest mass shuttles system users, the distance between the transit station ¼ mile from the house, being within ½ mile of a transit station house to the more moderate intensity. 64% mileage passenger motorcycle taxis to the location of the end of the journey as far as 1-5 km, states foot comfort is influenced by the weather and the type of activity, most of the Indonesian people feel comfortable walking distance range of approximately 400 meters and shopping take goods range from approximately 300 meters

Currently more than 32% of users use a motorcycle to KRL Jabodetabek KRL station. Currently each neighborhood electric train station parking facilities much available starting motorcycles and cars supplied by local people to serve the commuter station would switch modes using the KRL Jabodetabek.

## II. STUDY OF THEORY

### 1. Intermodal Transportation/Multimodal

The integration of transportation is one aspect of the manifestation implementation of effective and efficient transportation. The integration of transport can be realized if the implementation of intermodal transport / multimodal can manifest with the optimal, effective and efficient. Definition of intermodal transportation / Multimodal interpreted as follows: Transportation interpreted as intermodal transport

passengers and / or those using more than one mode transport in a sustainable trip. Intermodal transport emphasize on a combination of network infrastructure services., b. Multimodal transportation is a transportation of goods using the least amount two different modes of transportation, based on a contract that use a multimodal transport documents from one place goods accepted by multimodal transport operator to a appointed place for such goods. More emphasis on the multimodal transport of goods and passengers transport services. But from the use conveyance for the smooth flow of goods and mobility of people, intermodal and multimodal transport requires the integration of more than two modes, either in the form of networks and network services infrastructure., c. Multimodal Transport Business Entity is Business Entity that have license from the Indonesian government to act on its own or by other legal entities representing it, close and complete the multimodal transport contract and issued a freight documents.

## **2. Public Transport System Components**

The physical components of transit system are generally classified on the following points: a. vehicle; b. Pathway, can be a road, bus lines, etc.; c. Location and facilities, where the vehicle stopped to raise and sent down passenger; d. Garage or bus depot for vehicle storage shop as facilities for vehicle maintenance and repair; e. Control system, including vehicle detection, communication, etc.; f. Transit route.

Some transit systems development guidelines, among others; consists of two approaches, that is transit corridors and transit node / node whose success depends on the movement of medium density towards high density. Settlements and commercial areas should amalgamated area around transit stops. Judged to have appropriate land use to transit, schools, apartments, and office buildings are major and motels, stores, warehousing as a complement. channeled into the appropriate the use the transit corridor or node / node

## **3. Interaction of land use and transportation**

The number of trips generated relating to land use type and intensity of activities that take place on the land. Generation of traffic generated by each land use are overview of role in the socio-economic. Land use is a land regulation in the still vacant land sector in the scope of the region (both at national, regional and local) for the activities of certain activities. Land use / land not only regulate the use of the land, but what about the accessibility of land use to one another so that land can be more effectively and efficiently. To achieve this goal it is all performed landscaping structuring transport system that can increase accessibility and mobility between land uses. Further it is said that the transport system is a combination of elements or components: a. Infrastructure (roads and terminals) b. Facilities (vehicles) c. Operating system (which coordinates infrastructure)

Land use is one of main factors that determine the movement and activity. A process form cycle linking transportation and activities in land use can provide answers to the fundamental patterns of land use and transport needs of all time. The concept underlying the relationship of land use and transport is accessibility also means ease of movement between the two places do. Increased accessibility in terms of time or money when movement is much cheaper. Moreover, the tendency to interact will also increase when the downward movement.

## **4. Transportation planning**

Transport system is considered as a series facilitation and institutions, which are organized for the quality of the access options within an urbanized area, neighborhood businesses and individuals affected by the proposed implementations of transport. These changes can affect the transportation system for the long term. Approach to transportation systems and users as a tool that make up the structure, to be: a. Transportation facilities to meet market demand in determining the amount of land available for development at different levels of accessibility. b. Transportation system should not be selected exclusively on its ability bring travel demand as a side effect option. It is, may quite negative in public services, short-term gains which option is issued. At the same time, the consequences for businesses and individuals can accumulate, thus can be detrimental to the appearance of the whole transportation system .c. Transportation system design can be achieved from the process of limiting a good choice. The first choice goal-setting for the long-term development of the region to be the most critical and in line with the policy to affect productivity, shape and organization of the region as well as consumer satisfaction associated with life and work.

The zoning law is the oldest tool most widely used for the implementation of local land use plans. Basically zoning is a guarantee that the land use in a unit in accordance with the other zones. Zoning enable controlling congestion in each division zoning category. Like family, apartments, offices, commercial areas, and so on. With the goal of providing decent facilities (roads, water, drains, schools) for that category. Zoning is not only provide elements such as setback and minimum lot size, but also includes how to preserve and protect the environment.

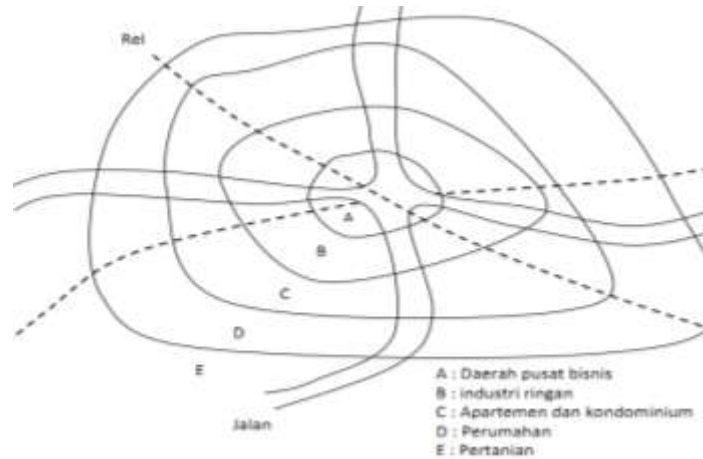


Figure 1. Zone division

Understanding the urban public transport, need to consider the type of journey that is underway in the urban area, consisting of 3 levels of traction trip generation, : high density (downtown), medium density (residential high density, industrial development) and low density (suburban residential). As a result, identified six types of urban travel

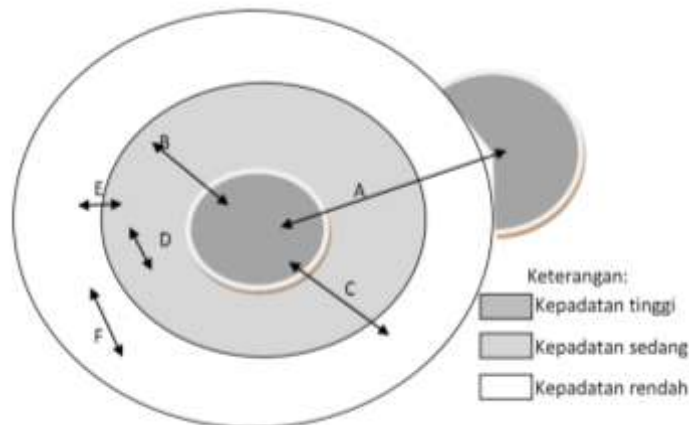


Figure 2. Urban trips with different types

### III. RESEARCH METHOD

#### 3.1. Description of System

In the early stages of this research to be done is find out the system description as follows: A. Trip occurs due to the activities in different places with the area where they live., B. Growth in a different city residential location is further away from the centers of activity, making travel time sufficiently. C. Increased frequency and volume coupled activities that serve the demands of providing space to accommodate new activities, D. Provision of new facilities is limited by the number and extent of open space the city., E. Development towards the edge of the city urged the city, due to the blurring of meaning around the city (the urban nature and properties of countrified)., F. The number of private vehicles and the number of public transport commuters in helping the community do., G. Improved quality and support transit improvements will improve the accessibility of public transport commuters and reduce private car., H. Currently each neighborhood electric train station parking facilities are widely available starting motorcycles and cars supplied by local people to serve the commuter station would switch modes using the KRL Jabodetabek.

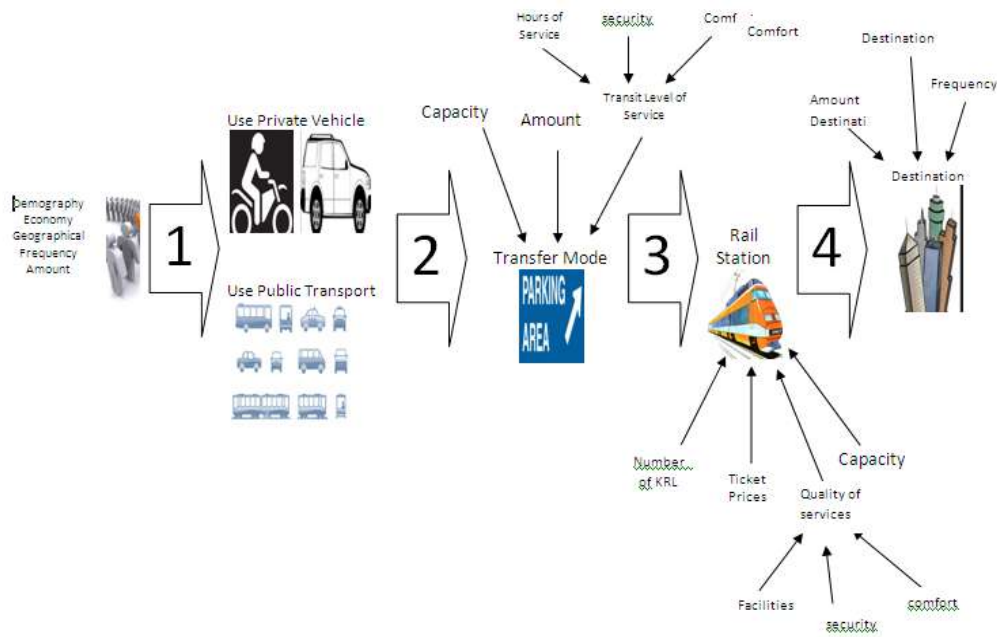


Figure 3. Transfer mode

**3.2. Research Variables**

Description of the model system transfer KRL Jabodetabek modes that have been depicted in figure 3 Model Transfer Mode then analyzed in-depth to find out some of the variables that can be calculated and then further be concluded. Based on the analysis of system, the purpose or the dependent variable of the model is built is "Use of Facility Transfer Rate Mode". The dependent variable is determined by four main independent variable is the level of transit service (quality), a range of transit (accessibility), transit users, and land use. as shown in Figure 4:

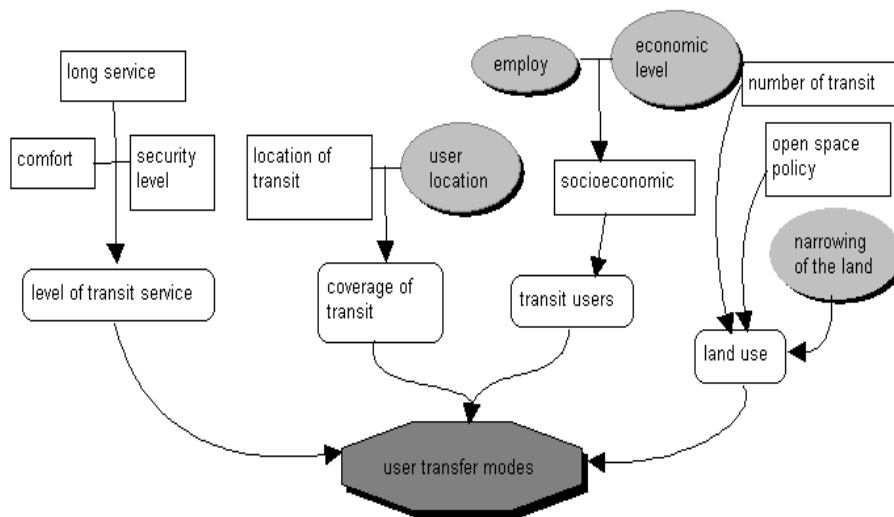


Figure 4. Use of Facility Transfer Rate Mode

**3.3. Mathematical Model**

Based on the influence diagram constructed, then lowered in the form of a mathematical model, shown in Figure 5

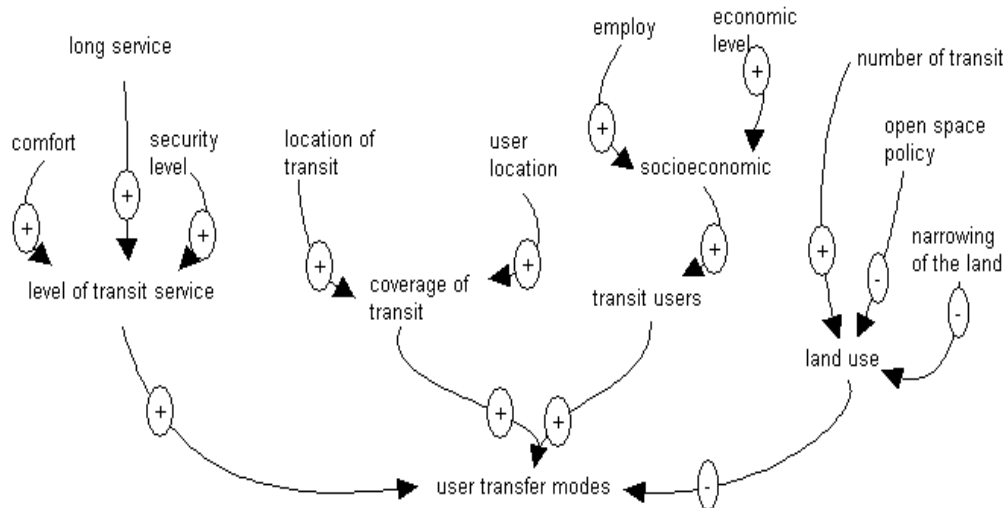


Figure 5. causality transfer modes

Transfer use Moda (Y) = {Transfer Service Level Mode (X1) + Reach Resources Transfer Mode (X2) + User Transfer Mode (X3)} - Utilization of Land Use (X4)

With:

X1: Function Comfort (a1), Level security (a2), Long Service (a3))

X2: function (Location Transit (b1), User Location (b2))

X3: function (Employment (c1), level Economics (c2))

X4: Function (Amount Transit (d1 ), Open Space Policy (d2), narrowing Land (d3))

#### IV. CONCLUSION

User interest over the modes is strongly influenced by the level of service, coverage, number of users transfer modes and land use, if the variables can be managed properly it will increase the number of users of the rail transport mode. with this study expected a continuous service between availability modes over the commuter rail service will further optimize the switching modes of mass transit use and reduce the volume of vehicles on the road.

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