CHAPTER I

INTRODUCTION

1.1. Background

Indonesia is a developing country that want to promote economy equally. Development of economy cannot be separated from the role of transportation. Transportation is an important sector in supporting the success of society economic activities, because it provides access for the society to meet the needs of goods and services. One of the transportation infrastructures that support economic is road. Because road is a link to speed up all the movement of society.

Yogyakarta is one of the provinces that want to promote road infrastructure, because Yogyakarta is a student city and one of the tourist destinations. Moreover, Yogyakarta is an inter-provincial route on Java. Therefore, road conditions are expected to provide a sense of security and comfort for users of road. Good road conditions will facilitate the movement of people in conducting economic activities, while bad road conditions will hamper the mobility of the community. But along with the increasing of population in Yogyakarta, so requirement of transportation also increases, and it will cause decrease of road quality. Because road is burdened by high traffic volume (overload).

Jalan Ringroad Utara is one of the most crowded road in Yogyakarta, because *Jalan Ringroad Utara* is the main road for people to do activities. Additionally, *Jalan Ringroad Utara* is also a trans-provincial route. This causes a risky road damaged. Especially in traffic lamp, because when the vehicle is stop

and start to ride again, it will make more load to the pavement. So the road can damage easily. Therefore, the author will focus research on *Jalan Rinroad Utara* (especially conjuction in *Gejayan*).

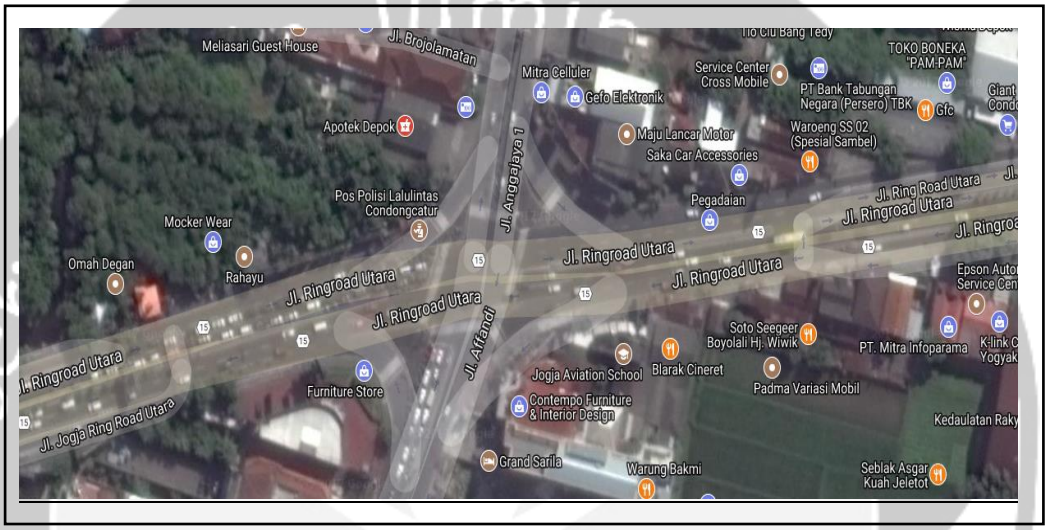

Figure 1.1. Location of research
Source: Google Maps

1.2. Problem Statement

Jalan Ringroad Utara is one of main road for people to do activity in Yogyakarta, so that *Jalan Ringroad Utara* is hoped good condition and give sense of safe and comfortable. But with many vehicles through this road, so the flexible pavement (asphalt) can damage easily. Moreover, in traffic light the force can be more, because when vehicle stop and start to drive again. It will make Asphalt become cracking and potholes.

Rigid pavement has many advantages than flexible pavement, one of the advantages is Rigid pavement can resist load better than flexible pavement. Moreover, in the traffic light has bigger load, so rigid pavement is good to use for

changing the flexible pavement. But the old pavement has each layer construction, so the author will consider about it. Because the existing layer will influence to the analysis.

1.3. Problem Limitation

In order to make this research focused in the main problem, author set several limitations:

1. The research will be conducted only in *Jalan Ringroad Utara*?
2. The research is only designing rigid pavement.

1.4. Purpose of research

The purpose of research is to know about the type of road damage in the research location and to know about designing of rigid pavement as the repairing of road damage with some requirement in the situation of location.

1.5. Benefits of Research

The result of this study is expected to be useful for various parties, among others:

1. For the government: this research can be references in order to help for improving and to identifying the road damage.
2. For the author: this research can give knowledge and information about the type of road damage, cause of road damage and designing of concrete pavement.