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Railway infrastructure to support inter-modal transportation from port to hinterland (case Study-Manyar port)

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Abstract

It has been encountered that port operations where lines of trucks are queuing at the port entrance, flotillas of vessels are waiting at sea, piles of freight, raw materials or containers are clogging the dockside and could led to significant congestions. This research aims to evaluate railway infrastructure surrounding new East Java Province port that can be used to reduce traffic congestions to allow the general public to move efficiently around the city and to facilitate the smooth passage of freight from port to the hinterland.

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Keywords: congestion; social-economic impact; intermodal.

1. Introduction

PT Pelabuhan Indonesia III (Persero) along with PT Aneka Kimia Raya (AKR) is currently developing an integrated industrial estate located in the District of Manyar, Gresik, East Java. The region is a Java Integrated Industrial Estate and Ports (JIIPE) which consists of the port area with an area of 400 hectares a result of reclamation, industrial estates with an area of 1,761 hectares and residential or residential area 800 hectares and the docks along the 4 km. This area

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was built and developed as a center for the development of new industries in the north side of Gresik to support economic activity in East Java and Indonesia in general.

To connect the port area and the industry to the hinterland, an infrastructure network is needed One of the reliable transport infrastructure, is a rail road network on the west side. Not far from the location of JIIPE there is a railway line across the north of the island of Java. Furthermore, on the south side of the JIIPE's area, there is an existing rail road network, which connects to the industrial area in Gresik, but has rarely operated.

In this study conducted an analysis of three alternatives train service from JIIPE to the hinterland by the method of multi-criteria analysis, to determine the best route.

2. Introduction

Multi-criteria analysis is one method that can be used to analyze the alternatives that exist to determine the ranking of the alternatives.

Department for Communities and Local Government (2009) stated that Multi Criteria Analysis (MCA) techniques commonly apply two stages while doing MCA which are scoring and weighting. The numerical analysis could perform as matrix. The two stages are:

1. Scoring: the expected consequences of each option are assigned a numerical score on a strength of preference scale for each option for each criterion. More preferred options score higher on the scale, and less preferred options score lower. In practice, scales extending from 0 to 100 are often used, where 0 represents a real or hypothetical least preferred option, and 100 is associated with a real or hypothetical most preferred option. All options considered in the MCA would then fall between 0 and 100.

2. Weighting: numerical weights are assigned to define, for each criterion, the relative valuations of a shift between the top and bottom of the chosen scale.

3. Study Location

Three alternatives routes have been considered as shown in Figure 1

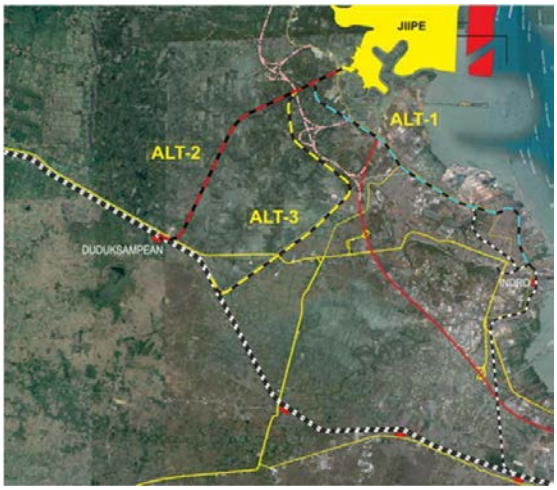

Fig.1. Three alternatives routes

Source: LPPM ITS, 2015