ABSTRACT

The highway service level of Yogyakarta - Magelang at peak hour is unstable. An alternative is needed to fix this condition. Based on the Provincial Governor's Regulation No. 8 of 2017 on the Provincial Railway Master Plan of 2017-2036 the Yogyakarta-Borobudur railway line is the route to be built from 2017 to 2029. Based on a 2009 Ministry of Transportation Feasibility Study the approximate potential demand for rail mode is used by assuming other mode users are switching to rail mode in 2021 is 18 percent. Therefore, the development is more important to provide alternative reactivation planning of the Yogyakarta - Borobudur railway line. The purpose of this research is to know condition of existing relisting road infrastructure of Yogyakarta - Palbapang Magelang, provide alternative trace suggestions and select the best trace, and designing railroad geometry based on selected trace.

This research uses descriptive research method. In this study, collecting data includes primary and secondary. The analysis used to plan circulation using ArcGIS software based on the provisions of Regulation of the Minister of Transportation No. 11 of 2012 and design of rail geometry using Autocad Civil 3D software.

The results showed that the existing rail road from Yogyakarta to Palbapang Magelang that has been used by the society70.59%, Damaged 23.53% and in good condition only 5.88%. Based on the trace ranking, the selected trace is a new trace with a length of 24 km pass through rice field 48.26 ha, plantation 8.86 ha, settlement 2.15 ha and 0.29 ha moor. The railway class used is grade 4 with the overall geometry design based on the decision of the Minister of Transportation No. 60 of 2012 and the Official Regulation of the Railway Company No.10 in 1986.

***Keywords**: ArcGIS, Autocad Civil 3D, Geometry, Railway, Trace*