

## **ABSTRACT**

*Economy in Indonesia, especially the Special Region of Yogyakarta, is very influential on the success in the development of infrastructure development, especially on road construction. Road construction projects require several combinations of heavy equipment to determine or determine the lowest cost and fastest time on road works. Analysis of the combination of heavy equipment aims to obtain a combination of heavy equipment with the lowest cost and a short time on earthwork. The research method was carried out in stages, starting to calculate the productivity of heavy equipment excavators and dump trucks. The next step is to calculate the cost of renting each heavy equipment. Make several combinations on earthwork. Get the combination with the fastest time and the lowest cost. In field conditions there are 1 SK200 excavator unit, 1 SK50 excavator unit, 2 dump truck units for SK 200, and 1 unit dump truck for SK 50. The results of the alternatives obtained are compared with the original conditions in the field and the results are in the form of cost and completion time, so by using three alternatives. In Alternative 1, heavy equipment uses 1 unit of SK200 excavator, 1 unit of SK50 excavator, 2 units of dump truck for SK200, and 1 unit of dump truck for SK50. Alternative 2 uses heavy equipment 1 unit of SK200 excavator, 1 unit of SK50 excavator, 3 units of dump truck for SK200, and 3 units of dump truck for SK5). Alternative 3 uses heavy equipment 1 unit of SK200 excavator, 2 units of SK50 excavator, 5 units of dump truck for SK200, and 4 units of dump truck for SK50. The results used in alternative 1 have a time ratio of 171.69 hours and a cost of Rp 21,698,391.65 taking into account the conditions in the field.*

*Keywords: Heavy Equipment, Productivity, excavators, dump trucks*

