SITE LAYOUT OPTIMIZING BY USING MULTI-OBJECTIVES METHOD AT ITS RESEARCH CENTER BUILDING PROJECT CONSTRUCTION - SURABAYA

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ABSTRACT
Layout of project site is one of the important aspects that support the implementation of the project run smoothly. The objective of site layout is to set up the location of the temporary building in such a way that can improve productivity and safety at the site efficiently.

In this research, ITS Research Center Building Project used as an object of the study case, it has site area for 8,374.7109 m², temporary facilities area for 845.698 m² and main building area for 1,946.784 m². Most researches and studies of site layout optimizing in determining distance between facilities (traveling distance) tended to use Euclidean method. Calculation of traveling distance by using Manhattan method is better represent of the actual distance than Euclidean method, which Manhattan method considering the obstacles in the determination of the distances. In this research, optimization of site layout reviewing the traveling distance and safety index minimizing with manual mathematics calculation which the distance is determined by using Manhattan method. Optimization of site layout is assumed as an unequal site layout.

Based on the sixth (6) scenarios that have been conducted, obtained the lowest traveling distance value is
21,432.75 m or decreased by 8.76% from the initial condition that contained in scenario number 2 and the lowest safety index value is 1836.17 or decreased by 1.58% from the initial condition that contained in scenario number 6.

Keywords: Manhattan, optimizing, safety index, traveling distance, unequal site-layout.