

ABSTRACT

The Reconstruction Project of the Ciawigebang – Cirebon/Kuningan Border (Waled) Road section is a critical transportation infrastructure in Kuningan Regency designed to enhance road serviceability and inter-regional logistics. However, a tight contractual duration of 210 calendar days combined with potential non-technical bottlenecks and field weather conditions pose significant delay risks. Consequently, precise time management analysis is required to map critical paths and quantify the probability of completing the project on schedule.

This study utilizes the Program Evaluation and Review Technique (PERT) method, which incorporates a probabilistic three-time estimate approach: optimistic time (a), most likely time (m), and pessimistic time (b). Research data were derived from project scheduling documents, time schedule curves (S-Curve), and technical field verifications with contractors and supervisors. The analysis framework includes calculated expected time (T_e), critical path identification via Network Planning, variance and standard deviation assessments, and probability estimation using the standard normal distribution Z-Score.

The results indicate that the total critical expected duration (T_e) for completing the project sequence is 197 calendar days. The critical path encompasses key activities ranging from site preparation/SMKK, earth excavation, Class A aggregate base layer, to asphalt paving (AC-BC and AC-WC). Statistical analysis yields a total project standard deviation (σ) of 2.45 days and a Z-Score of 3.06 relative to the 210-day contract deadline. This translates to a high completion probability of 99.89% within the contract period. The PERT method proves highly effective in providing realistic schedule evaluations and serving as a robust delay mitigation tool in highway construction projects.

Time Management; PERT (Program Evaluation and Review Technique); Critical Path; Road Reconstruction; Completion Probability.