

ABSTRACT

Performance And Service Evaluation Of The Toll Gate In The Kelapa Gading - Pulo Gebang Segment (Case Study: Kelapa Gading Toll Gate)

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A toll road is a public road that is part of the road network system and functions as a national road. Toll roads are designed to allow for faster and more efficient traffic flow compared to regular roads, with strict access control since all users are required to pay a toll. One of the main issues on toll roads is congestion at toll gates, which is caused by a mismatch between the number of gates and the volume of vehicles passing through. The lengthy transaction process further exacerbates this condition. Therefore, this final project discusses the evaluation of the queues that occur at the Kelapa Gading toll gate, as there are frequent queues at this toll gate, especially during peak hours. An evaluation of the performance of the toll gate is necessary to determine the optimal number of toll booths to accommodate the current and future vehicle volume.

This final project, the analysis conducted includes the analysis of arrival rates, service times, traffic intensity, and queue analysis. To fulfill this analysis, data is required from surveys, specifically regarding vehicle arrival rates, service times, and queue lengths.

The results of the evaluation analysis of the toll gate indicate that the vehicle arrival rate at the Kelapa Gading toll gate is 494 vehicles/hour/gate. The number of toll booths required for the Kelapa Gading toll gate is 2 booths, with one booth designated for single GTO and one for multi GTO. According to the forecasting analysis for the year 2029, the number of toll booths needed for the Kelapa Gading toll gate will be 4 booths, with two booths each for single GTO and multi GTO. The service time for both single GTO and multi GTO has met the service time requirements in accordance with the Minimum Service Standards (SPM), which stipulates a service time of less than 5 seconds per vehicle.

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