

## ABSTRACT

Queues of vehicles is frequently encountered at every entrance and exit toll gate. Queues occur due to the demand for services exceeds the capacity of services or facilities services, so that users of the facility could not immediately get the service due to busyness of service. Analysis of the performance of the toll gate is intended to find out how many doors toll services needed for the long queues posed especially in rush hours in the morning and evening and at the weekend not to exceed the limits queue so there is no long queues at the toll booth. This research was conducted at the Pasteur toll gate Bandung. It is known that the model of queues at the toll gate Pasteur is a Single-Channel Single Phase and  $M / M / 1$ ; (FIFO /  $\infty / \infty$ ), where the arrival time Poisson distributed, service time distribution Exponential service system single, the number of server services 1, discipline is a FIFO queue, and the number of queues and the source population is not limited. The result showed that the working performance of the system at the exit toll gate Pasteur is not optimal, because the value of the utility at the weekend exceeds 1, on Saturday at 1.2036 and on Sundays at 1.0154. Causing the queue length exceeds the maximum queue length limit has been set. Therefore, given the proposed performance improvement system performance by adding server service as much as 2 substation. To obtain a more optimal result is reduction in utility value of 0.9629 on Saturday and 0.8124 on the day of the week. and a decrease in the average waiting time kendaraan and reduction of the average number of queues of vehicles.

Keywords : Queues, Toll Gate, Utilities, Service Time, Model Queue