

INTISARI

Jalan Yogyakarta-Solo memiliki nilai derajat kejenuhan tinggi dengan tingkat pelayanan jalan F sehingga sering terjadi kemacetan. Di sisi lain, pada tahun 2020 telah beroperasi Bandar Udara Internasional Yogyakarta (YIA) yang berlokasi di Temon, Kulon Progo. Untuk mengatasi kemacetan dan meningkatkan aksesibilitas menuju YIA, salah satu cara yang sedang dilakukan oleh pemerintah yaitu membangun jalan tol Solo-Yogyakarta-NYIA Kulon Progo. Penyambungan Tol Solo menuju Yogyakarta menyebabkan pintu tol Colomadu dipindahkan ke Banyudono, Boyolali. Simping pintu tol akan dibuat simping sebidang bersinyal. Lokasi rencana simping Banyudono akan berdekatan dengan simping tiga Bangak sehingga perlu dilakukan pemodelan untuk mengetahui keadaan lalu lintas di kedua simping.

Penelitian ini dilakukan di dua simping berdekatan, yaitu rencana simping Banyudono dan simping tiga Bangak. Data lalu lintas merupakan data yang diperoleh melalui *traffic counting*. Data-data yang mendukung pemodelan menggunakan perangkat lunak PTV VISSIM seperti waktu siklus dan kecepatan kendaraan diperoleh melalui survei, serta penentuan rute kendaraan diperoleh melalui analisis. Data pengaturan rencana APILL diperoleh menggunakan metode MKJI 1997. Pemodelan dilakukan pada tahun prediksi 2024 sehingga dilakukan prediksi volume lalu lintas pada simping.

Hasil perhitungan menggunakan metode MKJI 1997 yaitu rencana simping Banyudono memiliki waktu siklus 58 detik dengan tiga pengaturan fase. Parameter kinerja simping yang diamati yaitu panjang antrean dan volume kendaraan. Kondisi lalu lintas dua simping pada tahun prediksi 2024 yaitu panjang antrean kendaraan pada simping tidak akan sampai di lengan yang lain.

Kata kunci: simping, perangkat lunak PTV VISSIM, MKJI 1997, waktu siklus

ABSTRACT

The Yogyakarta-Solo road has a high degree of saturation with an F service level road, so congestion often occurs. On the other hand, Yogyakarta International Airport (YIA), located in Temon, Kulon Progo, has been operated since 2020. To overcome congestion and improve the accessibility to YIA, one of the ways that the government is currently doing is building the Solo-Yogyakarta-NYIA Kulon Progo toll road. The connection of the Solo toll road to Yogyakarta has caused the Colomadu toll gate to be moved to Banyudono, Boyolali. The toll gate intersection was designed as a signaled intersection. The planned location of the Banyudono intersection will be close to the Bangak intersection, so it is necessary to do modeling to determine the traffic conditions at both intersections.

This research was conducted at two adjacent intersections. They are the planned intersection of Banyudono and the Bangak intersection. Traffic volume data was obtained through the traffic counting method. Data that supports VISSIM modeling, such as cycle time and vehicle speed, were obtained through surveys, and vehicle route determination was obtained through analysis. The cycle time plan for the Banyudono intersection was obtained using MKJI 1997. The modeling was carried out in the predicted year 2024 to predict traffic volume at the intersection.

The results using the 1997 MKJI method is that the Banyudono intersection plan has 58 seconds of cycle time with three phase settings. The observed intersection performance parameters are queue length and vehicle volume. The traffic conditions of the two intersections in the 2024 prediction year are that the queue length of vehicles at the intersection will not reach the other arm of the intersection.

Keywords: intersection, VISSIM, MKJI 1997, cycle time