

## INTISARI

Selama tahun 2019 hingga tahun 2022, terdapat pembangunan gedung dan penataan di kawasan Fakultas Teknik UGM, yaitu Embung Pendidikan Fakultas Teknik, Jalan Lingkar, Lab Bahan Bangunan, Gedung SGLC, Gedung ERIC, Masjid Teknik, Penataan Taman AGS, pembukaan pintu Utara Fakultas Teknik (sebelah Utara Lab Bahan Bangunan), pembukaan pintu emergency (sebelah utara RS Sardjito). Kegiatan penataan kawasan dan pembangunan gedung mengakibatkan perubahan pola lalu lintas internal kawasan Fakultas Teknik UGM, lokasi fasilitas parkir eksisting, serta kebutuhan fasilitas parkir. Oleh karena itu, kegiatan manajemen lalu lintas sangat diperlukan sehingga menciptakan kenyamanan dan keselamatan bagi civitas akademi Fakultas Teknik UGM.

Pemodelan dan simulasi lalu lintas menggunakan perangkat lunak VISSIM dan perhitungan kinerja jalan menggunakan Manual Kapasitas Jalan Indonesia (MKJI) 1997. Parameter kinerja jalan yang ditinjau yaitu nilai kecepatan kendaraan dan derajat jenuh ruas jalan. Data primer yang dibutuhkan berupa geometrik jalan, sedangkan volume dan kecepatan kendaraan diambil dari data sekunder.

Hasil penelitian pada skenario tahun 2023 tanpa perbaikan, menunjukkan peningkatan kecepatan rerata sebesar 1,82% dan penurunan derajat jenuh rerata sebesar 17,32%. Skenario perbaikan dilakukan untuk meningkatkan kinerja ruas jalan dengan memperhatikan aspek kelancaran, keselamatan, dan kemudahan akses. Skenario terbaik adalah skenario parking *off-street* dan jalan lingkar searah jarum jam dengan rerata kecepatan jaringan menjadi 30,8 km/jam dan derajat jenuh rerata 0,121.

Kata kunci : Manajemen Lalu Lintas, Microscopic Simulation, VISSIM, MKJI

## **ABSTRACT**

During 2019 until 2022, there were a few construction and arrangement in UGM Faculty of Engineering area, which are “Embung Pendidikan Fakultas Teknik”, the faculty of engineerin Ring Road, the Materials Lab Building, the SGLC Building, the ERIC Building, the Engineering Mosque, the AGS Park, the engineering North Gate of the Faculty of Engineering, and the opening of the emergency door (north of Sardjito Hospital). The arrangement and the construction activities have resulted in changes of internal traffic patterns in the UGM Faculty of Engineering area, the location of existing parking facilities, and the need for parking facilities. Therefore, traffic management activities are necessary to create comfort and safety for the academic community of the UGM Faculty of Engineering.

Modeling and simulating traffic using VISSIM software and calculating road performance using the Indonesian Road Capacity Manual (MKJI) 1997. The road performance parameters that are reviewed are the value of vehicle speed and the degree of saturation of the road. The primary data required is the road geometry, while the volume and vehicle speed are taken from secondary data.

The results of the study in the 5-year scenario without improvement, showed an increase in the average speed of 1.82% and a decrease in the average degree of saturation by 17.32%. Repair scenarios are carried out to improve road performance by taking into account aspects of fluency, safety, and ease of access. The best scenario is the off-street parking scenario and the clockwise ring road direction with the average network speed being 30.8 km/hour and the average saturation degree is 0.121.

**Keywords:** Traffic Management, Microscopic Simulation, VISSIM, MKJI