

INTISARI

Simpang Jalan Affandi - Jalan Bougenville - Jalan Perumnas Gang, Yogyakarta merupakan simpang empat tak bersinyal. Pada Jalan Affandi terdapat median jalan, sehingga pengendara dari Jalan Bougenville menuju Jalan Perumnas Gang atau sebaliknya harus berbelok ke Jalan Affandi terlebih dahulu dan berbalik arah melalui u-turn. Hal ini berpotensi menimbulkan hambatan lalu lintas. Penelitian dilakukan untuk menganalisis kinerja simpang pada kondisi sekarang (tanpa sinyal), kondisi bila dipasang lampu APILL dan pembukaan median jalan pada lokasi simpang, serta kondisi 5 tahun mendatang. Hasil analisis digunakan sebagai usulan pengaturan simpang, sehingga simpang dapat berfungsi optimal.

Analisis simpang menggunakan *software* aaSidra 2.0, dengan *input* data volume arus lalu lintas dan data geometrik simpang. Volume lalu lintas dihitung berdasarkan variasi jenis kendaraan, arah gerakan, dan dalam segmen waktu 15 menit selama periode waktu 2 jam. Survei arus lalu lintas dilakukan dengan observasi di lapangan pada hari Selasa, 13 Desember 2016 saat jam puncak pagi (06.30 WIB – 08.30 WIB) dan jam puncak sore (16.00 WIB – 18.00 WIB). Arus lalu lintas pada simpang dihitung dari video yang direkam menggunakan *handycam* saat observasi, sementara arus lalu lintas pada u-turn dihitung langsung oleh 2 surveyor saat observasi. Geometrik simpang diukur langsung di lapangan menggunakan meteran.

Hasil penelitian menunjukkan bahwa simpang eksisting (tak bersinyal) dalam kondisi jenuh, sehingga disarankan untuk dilakukan pembukaan median pada simpang serta pemasangan lampu APILL dengan waktu siklus 73 detik. Sementara dalam 5 tahun mendatang, walaupun sudah dilakukan pemasangan lampu APILL, kondisi simpang akan mendekati kondisi jenuh (DS mendekati 1). Maka dalam jangka waktu kurang dari 5 tahun perlu dilakukan redesain simpang dengan memperlebar lengan timur menjadi 2 jalur 4 lajur dengan lebar lajur 3,27 m dan waktu siklus lampu APILL 77 detik.

Kata kunci : simpang, sinyal, derajat jenuh, median, aaSidra 2.0.

ABSTRACT

The intersection between Affandi Street – Bougenville Street - Perumnas Gang Street, Yogyakarta is an unsignalised 4-way intersection. There is a median at Affandi Street, therefore the riders from Bougenville Street must turn left to Affandi Street first and make a u-turn to reach Perumnas Gang Street or vice versa. This situation can make a traffic obstacles. This research compares between unsignalised intersection analysis (existing condition), signalised intersection analysis (intersection with signal and without median at Affandi Street), and intersection analysis over the next 5 years. The comparative results can be used as a consideration of intersection setting scenario, so that the intersection can have an optimal function.

The intersection analysis uses aaSidra 2.0, with the vehicles volume and geometric data as the input. The vehicles volume is calculated based on vehicle type and direction, every 15 minutes for a period of 2 hours. The vehicles volume is known from field observations that is conducted on Tuesday, December 13th, 2016 at 6.30 a.m. until 8.30 a.m. (peak hours of the morning) and 4 p.m. until 6 p.m. (peak hours of the evening). The intersection vehicles volume is calculated using handycam video, while the u-turn vehicles volume is calculated by 2 surveyors during observations. Geometric data is known from field observations using a meter roll.

The result of this research is that the unsignalised intersection (existing condition) is in saturated condition, therefore signal lamp installation (the cycle time is 73 seconds) and median opening is the most recommended scenario. But, for the next 5 years, although the intersection become a signalised intersection, intersection condition will be almost in saturated condition (DS value is almost 1). Therefore within a period of less than five years, it is necessary to redesign the intersection. The redesign scenario is to make Perumnas Gang Street wider, therefore Perumnas Gang Street is changed to 2 lines and 4 lanes with each lane width is 3.27 meters. The cycle time of signal lamp for the next 5 years is 77 seconds.

Keywords: intersection, signal, degree of saturation, median, aaSidra 2.0.