

ABSTRAK

Meningkatnya aktivitas lalu lintas pada ruas jalan perkotaan dapat memengaruhi kelancaran arus, terutama pada ruas jalan yang memiliki fasilitas *U-Turn* dan kondisi akses persimpangan yang memengaruhi pola pergerakan kendaraan. Salah satunya adalah Jalan Ibrahim Adjie Kota Bandung yang memiliki volume lalu lintas cukup tinggi serta aktivitas *U-Turn* yang cukup besar. Tingginya volume kendaraan yang melakukan gerakan putar balik pada ruas jalan tersebut berpotensi menimbulkan gangguan terhadap arus lalu lintas utama, sehingga diperlukan kajian mengenai pengaruh aktivitas *U-Turn* terhadap kinerja ruas jalan.

Penelitian ini bertujuan untuk menganalisis karakteristik lalu lintas, menganalisis pengaruh aktivitas *U-Turn* terhadap arus lalu lintas, serta menghitung kinerja ruas Jalan Ibrahim Adjie menggunakan metode Pedoman Kapasitas Jalan Indonesia (PKJI) 2023. Metode penelitian yang digunakan adalah pendekatan kuantitatif melalui survei lalu lintas dan observasi lapangan selama tujuh hari. Data yang dikumpulkan meliputi geometrik jalan, volume lalu lintas, volume kendaraan *U-Turn*, hambatan samping, serta kondisi pergerakan kendaraan. Analisis dilakukan berdasarkan PKJI 2023 untuk memperoleh nilai kapasitas, derajat kejenuhan, dan tingkat pelayanan ruas jalan.

Hasil penelitian menunjukkan bahwa volume lalu lintas tertinggi terjadi pada hari Minggu pukul 07.00–08.00 WIB sebesar 2.661,9 smp/jam arah Utara–Selatan dan 2.621,6 smp/jam arah Selatan–Utara, sedangkan volume kendaraan yang melakukan *U-Turn* mencapai 589,7 smp/jam. Hambatan samping sebesar 474,8 dan 469,0 kejadian berbobot/jam/200 m termasuk kategori sedang. Sebelum aktivitas *U-Turn* diperhitungkan, derajat kejenuhan sebesar 0,80 arah Utara–Selatan dan 0,78 arah Selatan–Utara dengan tingkat pelayanan LOS D. Setelah aktivitas *U-Turn* diperhitungkan, derajat kejenuhan meningkat menjadi 0,97 dan 0,96 sehingga tingkat pelayanan berubah menjadi LOS E. Penutupan salah satu lengan persimpangan Jalan Ibrahim Adjie–Jalan Gatot Subroto turut menyebabkan perubahan pola pergerakan kendaraan sehingga sebagian kendaraan menggunakan fasilitas *U-Turn* sebagai rute alternatif, yang menambah gangguan terhadap arus utama. Oleh karena itu, diperlukan evaluasi pengaturan akses persimpangan dan penataan fasilitas *U-Turn* secara terpadu untuk mengurangi gangguan terhadap arus lalu lintas.

Kata kunci: *U-Turn*, kinerja ruas jalan, PKJI 2023, derajat kejenuhan, tingkat pelayanan.

ABSTRACT

Increasing traffic activity on urban road segments can affect the smoothness of traffic flow, particularly on road segments equipped with U-Turn facilities and intersection access conditions that influence vehicle movement patterns. One such road is Jalan Ibrahim Adjie in Bandung City, which has a fairly high traffic volume as well as substantial U-Turn activity. The high volume of vehicles performing U-turn movements on this road segment has the potential to disrupt the main traffic flow, so a study on the effect of U-Turn activity on road performance is needed.

This study aims to analyze traffic characteristics, analyze the effect of U-Turn activity on traffic flow, and calculate the performance of the Jalan Ibrahim Adjie segment using the 2023 Indonesian Road Capacity Guidelines (PKJI) method. The research method used is a quantitative approach through traffic surveys and field observations over seven days. The data collected include road geometry, traffic volume, U-Turn vehicle volume, side friction, and vehicle movement conditions. The analysis was conducted based on PKJI 2023 to obtain capacity values, degree of saturation, and level of service of the road segment.

The results show that the highest traffic volume occurred on Sunday at 07.00–08.00 WIB, amounting to 2,661.9 pcu/hour in the North–South direction and 2,621.6 pcu/hour in the South–North direction, while the volume of vehicles performing U-Turns reached 589.7 pcu/hour. Side friction was recorded at 474.8 and 469.0 weighted events/hour/200 m, classified as medium. Before U-Turn activity was taken into account, the degree of saturation was 0.80 in the North–South direction and 0.78 in the South–North direction, with a level of service of LOS D. After U-Turn activity was taken into account, the degree of saturation increased to 0.97 and 0.96, changing the level of service to LOS E. The closure of one arm of the Jalan Ibrahim Adjie–Jalan Gatot Subroto intersection also altered vehicle movement patterns, causing some vehicles to use the U-Turn facility as an alternative route, which added further disruption to the main traffic flow. Therefore, an integrated evaluation of intersection access arrangement and U-Turn facility management is needed to reduce disruption to traffic flow.

Keywords: U-Turn, road segment performance, PKJI 2023, degree of saturation, level of service.