

ABSTRAK

Siti Mai Sarah NIM 5212250003 : Studi Keselamatan dan Keamanan pada Perlintasan Sebidang antara Jalan Rel dengan Jalan Raya (Studi Kasus : Perlintasan Kereta Api Jalan Platina I, Titi Papan, Kecamatan Medan Deli.

Perlindungan sebidang antara jalan raya dan rel kereta api merupakan salah satu titik rawan kecelakaan dalam sistem transportasi darat karena tingginya interaksi antara kendaraan dan kereta api. Penelitian ini bertujuan untuk menganalisis sarana dan prasarana fasilitas keselamatan, perilaku pengguna jalan, serta kondisi fisik perlindungan sebidang pada perlindungan kereta api di Jalan Platina I, Titi Papan, Kecamatan Medan Deli. Metode penelitian yang digunakan adalah metode deskriptif kuantitatif dengan pengumpulan data melalui observasi lapangan, survei volume lalu lintas, dokumentasi, serta penyebaran kuesioner kepada 100 responden. Data volume lalu lintas dianalisis menggunakan metode MKJI 1997 untuk memperoleh nilai satuan mobil penumpang (SMP), sedangkan tingkat kelayakan keselamatan dianalisis menggunakan metode pembobotan (scoring) dengan skala Likert. Selain itu, dilakukan analisis terhadap kondisi fasilitas keselamatan, perilaku pengguna jalan, dan kondisi fisik perlindungan dengan membandingkan kondisi lapangan terhadap standar teknis perlindungan sebidang. Hasil penelitian menunjukkan bahwa fasilitas perlengkapan perlindungan sebidang di lokasi penelitian belum sepenuhnya memenuhi standar teknis. Beberapa fasilitas penting seperti daftar semboyan dan genteng atau isyarat suara tidak tersedia, sehingga tingkat kelengkapan fasilitas hanya mencapai sekitar 80%. Selain itu, rambu lalu lintas pada perlindungan tersebut juga belum sesuai standar karena hanya terdapat satu rambu yang memenuhi ketentuan teknis. Dari hasil pengamatan perilaku pengguna jalan ditemukan sebanyak 121 pelanggaran, dengan mayoritas pelanggar adalah pengendara sepeda motor sebesar 72,73%. Jenis pelanggaran yang paling banyak dilakukan adalah menerobos pintu perlindungan sebesar 76,85%. Berdasarkan hasil analisis kuesioner terhadap 100 responden, diperoleh nilai rata-rata sebesar 62,32% yang termasuk dalam kategori baik, dengan rincian aspek fasilitas keselamatan sebesar 64,16%, aspek perilaku pengguna jalan sebesar 54,56%, aspek keamanan lingkungan dan pengawasan sebesar 69,88%, serta aspek persepsi masyarakat sebesar 60,65%. Namun demikian, hasil tersebut menunjukkan bahwa tingkat keselamatan masih berada pada kategori cukup baik dengan nilai yang relatif rendah. Dari aspek kondisi fisik perlindungan, ditemukan beberapa ketidaksesuaian dengan standar teknis, seperti kondisi permukaan jalan yang berlubang dan lebih rendah dari kepala rel sekitar 3 cm, sementara batas toleransi yang diperbolehkan hanya 0,5 cm. Selain itu, lebar jalan pada perlindungan mencapai 7,3 m yang melebihi standar maksimum 7 m, kondisi ballast rel tidak sesuai standar, serta tidak adanya pembatas antara rel dengan permukiman warga di sekitar lokasi. Kondisi penerangan pada malam hari juga dinilai kurang memadai. Berdasarkan hasil penelitian tersebut dapat disimpulkan bahwa meskipun secara persepsi masyarakat perlindungan sebidang Jalan Platina I masih tergolong layak dengan kategori baik, namun secara teknis fasilitas keselamatan, perilaku pengguna jalan, serta kondisi fisik perlindungan masih memiliki banyak kekurangan sehingga perlu dilakukan peningkatan fasilitas keselamatan dan perbaikan kondisi fisik perlindungan guna meminimalkan potensi kecelakaan di masa mendatang.

Kata kunci: perlindungan sebidang, keselamatan transportasi, perilaku pengguna jalan, fasilitas keselamatan, kondisi fisik perlindungan.

ABSTRACT

Siti Mai Sarah, NIM 5212250003: A Study of Safety and Security at a Railway Level Crossing between Railways and Roadways (Case Study: Platina I Railway Crossing, Titi Papan, Medan Deli District).

Level crossings between roads and railway tracks are considered high-risk points in land transportation systems due to the interaction between road vehicles and trains. This study aims to analyze the safety facilities and infrastructure, road user behavior, and the physical condition of the railway level crossing located on Platina I Street, Titi Papan, Medan Deli District. This research employed a quantitative descriptive method. Data were collected through field observations, traffic volume surveys, documentation, and questionnaires distributed to 100 respondents. Traffic volume data were analyzed using the Indonesian Highway Capacity Manual (MKJI 1997) to obtain passenger car unit (PCU) values. The level of safety feasibility was analyzed using a scoring method with a Likert scale. In addition, the condition of safety facilities, road user behavior, and the physical condition of the crossing were evaluated by comparing field conditions with the technical standards for railway level crossings. The results indicate that the safety facilities at the crossing have not fully met the required technical standards. Several important facilities such as signal instruction lists and bell or sound warning systems are not available, resulting in the overall facility completeness level reaching only about 80%. Furthermore, the traffic signs installed at the crossing do not meet the technical standards, as only one sign complies with the regulations. Field observations also recorded 121 traffic violations, with the majority committed by motorcycle riders (72.73%). The most frequent violation was illegally passing through the crossing gate, accounting for 76.85% of the total violations. Based on questionnaire analysis involving 100 respondents, the average score obtained was 62.32%, which falls into the “good” category. The results consist of safety facilities (64.16%), road user behavior (54.56%), environmental safety and supervision (69.88%), and community perception (60.65%). However, this result still indicates a relatively low level of safety performance. From the physical condition aspect, several deficiencies were identified, including damaged road surfaces and road levels that are approximately 3 cm lower than the rail head, while the allowable tolerance is only 0.5 cm. In addition, the road width at the crossing reaches 7.3 m, exceeding the maximum technical standard of 7 m. The ballast condition of the railway track is also not in accordance with the standard, and there is no protective barrier between the railway track and nearby residential areas. Moreover, lighting conditions at night are considered inadequate. Based on these findings, it can be concluded that although the community perceives the Platina I level crossing as generally feasible and categorized as good, technically the safety facilities, road user behavior, and physical conditions of the crossing still have several deficiencies. Therefore, improvements in safety facilities and physical infrastructure are necessary to reduce the risk of accidents in the future.

Keywords: level crossing, transportation safety, road user behavior, safety facilities, physical condition.