

ABSTRAK

Salendion Ogestina Tampubolon Nim : 5213510006: Analisis Perencanaan Tebal Perkerasan Kaku (*Rigid Pavement*) Pada Ruas Jalan Underpass Gatot Subroto Medan

Perencanaan Tebal Perkerasan Kaku Jalan Underpass Gatot Subroto Medan

Penelitian ini menganalisis perencanaan ketebalan perkerasan kaku di ruas Jalan Underpass Gatot Subroto, Medan. Perkerasan kaku dipilih karena kemampuannya menahan lalu lintas padat sehingga dapat menciptakan sistem transportasi yang lebih efisien, aman, dan berkelanjutan. Dalam pelaksanaannya, perencanaan perkerasan kaku seringkali menemui hambatan, seperti standar mutu yang tidak memadai, perkiraan Lalu Lintas Harian Rata-rata (LHR) yang terlalu rendah. Masalah-masalah ini berpotensi menyebabkan kerusakan dini pada jalan, seperti retak dan deformasi, serta meningkatkan biaya pemeliharaan. Studi ini mengaplikasikan metode Bina Marga untuk menganalisis dampak LHR terhadap desain ketebalan perkerasan. Data dikumpulkan melalui observasi lapangan, studi literatur, dan dokumentasi. Analisis data mencakup perhitungan faktor pertumbuhan lalu lintas, faktor keamanan beban, serta konversi beban lalu lintas ke dalam nilai Cumulative Equivalent Single Axle Load (CESAL). Hasil penelitian menunjukkan bahwa proyek ini termasuk dalam kategori lalu lintas berat, sehingga ketebalan pelat beton yang direkomendasikan harus mampu menahan beban tinggi. Struktur perkerasan yang disarankan terdiri dari lapisan pelat beton, lapisan pondasi LMC, lapisan pondasi agregat, dan stabilisasi tanah dasar. Perkerasan ini juga dilengkapi dengan dowel dan bahu beton.

Kata Kunci: Perkerasan kaku, LHR, CESAL, Bina Marga.



ABSTRACT

Salendion Ogestina Tampubolon Nim : 5213510006: Analysis of Rigid Pavement Thickness Planning on the Gatot Subroto Medan Underpass Road Section

This research analyzes the design of rigid pavement thickness on the Underpass Gatot Subroto road section in Medan. Rigid pavement is chosen for roads with heavy traffic to create an efficient, safe, and sustainable transportation system. However, the implementation of rigid pavement design often faces challenges, such as low design quality standards, underestimated Average Daily Traffic (ADT), and the use of inappropriate California Bearing Ratio (CBR) values. These issues can lead to premature damage like cracks and deformation, and increase future maintenance costs. This study uses the Bina Marga method to analyze the influence of ADT on pavement thickness design. Data collection was carried out through field observation, documentation, and literature review. Data analysis includes calculating traffic growth factors, load safety factors, and converting traffic loads into Cumulative Equivalent Single Axle Load (CESAL). The results show that this project falls into the heavy traffic load category, thus the recommended concrete slab thickness is appropriate for withstanding high loads. The recommended pavement structure consists of a concrete slab, a Lean Mix Concrete (LMC) sub-base layer, an aggregate sub-base layer, and stabilized subgrade, and is equipped with dowels and concrete shoulders. This study concludes that the design of rigid pavement thickness must be based on a comprehensive analysis of material quality standards, subgrade bearing capacity, and accurate traffic load projections to produce a high-quality, safe, and sustainable road infrastructure.

Keywords: Rigid pavement, ADT, CESAL, Bina Marga.

