

INTISARI

Jalan merupakan prasarana transportasi darat yang berperan penting dalam mendukung mobilitas masyarakat dan distribusi barang. Seiring meningkatnya beban lalu lintas dan usia layanan, kondisi perkerasan jalan cenderung mengalami penurunan kualitas, sehingga diperlukan evaluasi untuk menentukan tingkat kerusakan sekaligus alternatif penanganan yang tepat. Ruas Jalan Yogyakarta-Demakijo merupakan jalan provinsi yang menghubungkan Kota Yogyakarta dengan Kabupaten Sleman khususnya Kecamatan Godean dan sekitarnya, dimana memiliki V/C rasio pada tahun 2023 mencapai 0,9. Oleh karena itu, penelitian ini bertujuan untuk mengevaluasi kondisi perkerasan lentur pada ruas Jalan Yogyakarta–Demakijo.

Penelitian dilakukan menggunakan lima metode, yaitu *Pavement Condition Index* (PCI), *Present Serviceability Index* (PSI) dengan persamaan AASHTO dan NCHRP, *Surface Distress Index* (SDI), serta *International Roughness Index* (IRI). Selanjutnya, ditentukan jenis kerusakan dominan, metode penanganan yang paling sesuai, dan rekomendasi penanganan dari hasil evaluasi. Data kerusakan diperoleh melalui survei visual, sedangkan nilai kekasaran permukaan perkerasan atau IRI diukur menggunakan aplikasi RoadLab Pro.

Hasil penelitian menunjukkan nilai hasil metode PCI *section A* sebesar 55,25 (sedang) dan *section B* sebesar 54,75 (rusak ringan), PSI AASHTO *section A* sebesar 1,26 (rusak ringan) dan *section B* sebesar 1,22 (rusak ringan), PSI NCHRP *section A* sebesar 1,12 (rusak ringan) dan *section B* sebesar 1,14 (rusak ringan), SDI pada satu ruas jalan sebesar 133,6 (rusak ringan), dan IRI pada satu ruas jalan sebesar 6 m/Km (sedang). Jenis kerusakan dominan berdasarkan ASTM meliputi *patching & utility, corrugation, ravelling, longitudinal and transversal cracking, alligator cracking, edge cracking, serta block cracking*. Metode PCI dinilai paling sesuai pada lokasi studi karena memiliki jenis kerusakan lebih lengkap sehingga lebih merepresentasikan kondisi sebenarnya. Secara umum jalan tergolong rusak ringan sehingga direkomendasikan penanganan rehabilitasi dengan HMA *overlay*.

Kata kunci: manajemen perkerasan, evaluasi perkerasan, pemeliharaan jalan, PCI, PSI, SDI, IRI

ABSTRACT

Roads are important land transport infrastructure that support community mobility and the distribution of goods. As traffic loads increase and pavement ages, road conditions tend to decline, making evaluation necessary to identify the level of damage and suitable treatment strategies. The Yogyakarta–Demakijo road is a provincial route that connects Yogyakarta City with Sleman Regency, particularly the Godean area, with a V/C ratio of 0,9 in 2023. This study aims to evaluate the flexible pavement condition along this road.

The study was conducted using five methods, namely the Pavement Condition Index (PCI), the Present Serviceability Index (PSI) with both the AASHTO and NCHRP equations, the Surface Distress Index (SDI), and the International Roughness Index (IRI). The research then identified the predominant types of distress, determined the most appropriate treatment method, and provided recommendations based on the evaluation results. Distress data were obtained through visual surveys, while pavement surface roughness (IRI) was measured using the RoadLab Pro application.

The results show that the PCI value was 55,25 (fair) in section A and 54,75 (poor) in section B. PSI AASHTO results were 1,26 (section A) and 1,22 (section B), PSI NCHRP results were 1,12 (section A) and 1,14 (section B), and the average SDI was 133,6, all of which fall into the poor category. The average IRI was 6 m/km, which is considered moderate. The dominant types of damage identified based on ASTM were patching & utility, corrugation, ravelling, longitudinal and transversal cracking, alligator cracking, edge cracking, and block cracking. Overall, the PCI method was found to be the most suitable for this study location, as it covers more types of pavement distress and better represents actual conditions. In general, the road is categorized as poor, and rehabilitation with an HMA overlay is recommended.

Keywords: *pavement management, pavement evaluation, road maintenance, PCI, PSI, SDI, IRI*