

## INTISARI

Thasya Tamara Putri, 2022, Penanganan *Rigid Pavement* dengan Pondasi Cakar Ayam Modifikasi Ruas Jalan Nasional Bojonegoro - Padangan Menggunakan Pendekatan Preservasi dan Peningkatan Jalan. (Dibimbing oleh Dr. Eng. Iman Haryanto, S.T., M.T)

Ruas Jalan Bojonegoro – Padangan merupakan ruas Jalan Nasional Rute 24, bagian dari arteri primer 1 jalur 2 lajur antara Provinsi Jawa Timur dengan Jawa Tengah dikategorikan sebagai jalan pantura antara Cepu – Bojonegoro - Surabaya. Jalan Bojonegoro–Padangan stasioning 114+550 s/d 124+600, selesai dibangun dan diresmikan pada tahun 2013 dengan panjang jalan 11,50 Km dan lebar efektif 11,00 m. Data sekunder daya dukung tanah tergolong tanah ekspansif, sehingga BPJN Jawa Timur melakukan peningkatan jalan menggunakan *rigid pavement* dan beberapa segmen menggunakan metode cakar ayam modifikasi (CAM). Persyaratan *rigid pavement* dirancang untuk melayani lalu-lintas 40 tahun, namun dari tinjauan saat dibukanya akses lalu-lintas di tahun 2013 telah mengalami deformasi seperti retak memanjang. Monitoring tahun 2022 kondisi jalan masih mengalami retakan, pecah-pecah, dan *pumping*. Tujuan dari Penelitian ini mengetahui tingkat deformasi dari perhitungan nilai *Present Serviceability Index* (PSI) *rigid pavement* dengan memperhatikan syarat perhitungan perkerasan beserta rencana teknis penanganan *rigid pavement* dengan pendekatan preservasi dan peningkatan jalan.

Penggunaan metode Manual Desain Perkerasan 2021 dan AASHTO 1993 : dari hasil evaluasi kinerja perkerasan dengan pemanfaatan korelasi IRI dan PSI kerusakan terparah pada Km.Sby (118 + 000) – (118 +600), hasil perhitungan nilai modulus reaksi tanah CBR *mix design* (315 pci), *rigid pavement* dengan CAM (24922 pci), *rigid pavement* tanpa CAM (21537 pci), dan nilai modulus reaksi tanah CAM (46718 pci). Evaluasi tebal pelat semula 27 cm disarankan menjadi 30,5 cm berdasarkan analisis lalu-lintas kendaraan berat selama UR 40 tahun sebesar 53.022.565 ESAL. Penanganan sementara melalui preservasi kerusakan, *cracks* diatasi dengan pengisian celah dan *pumping* dengan bahan *filler* disuntikkan (*grouted*) ke rongga di bawah *slab* beton. Peningkatan jalan dengan rencana teknis penanganan UR 40 tahun menggunakan *overlay* jenis perkerasan beton semen *separated overlay* metode Pd T-14-2003 dengan 20 cm pada kondisi retak dan 26 cm pada kondisi kerusakan struktural.

**Kata Kunci :** *Rigid pavement*, CAM, PSI, reaktifitas tanah, AASHTO 1993, Manual Desain Perkerasan 2021, Pd T-14-2003, preservasi, peningkatan jalan, *separated overlay*.

## ABSTRACT

*Thasya Tamara Putri, 2022, Handling Rigid Pavement with Modified Chicken-Foot Foundation on Bojonegoro—Padangan National Road Section Using Preservation and Approach. (Advised by Dr. Eng. Iman Haryanto, S.T., M.T)*

*Bojonegoro—Padangan road section is a Route 24 National Park, a part of primary arterial road 1 lane 2 and a lane between East Java Province and Central Java Province, categorized as North Coast Road between Cepu—Bojonegoro—Surabaya. Bojonegoro—Padangan road stationing 114+550 until 124+600 had been completely built and inaugurated in 2013 with the road length 11.50 Km and the effective width 11.00 m. Secondary data of soil bearing capacity is classified in expansive soil so that BPJN Jawa Timur carries out road improvement using rigid pavement and some segments using Cakar Ayam Modifikasi (CAM)—Modified Chicken-Foot method. Rigid pavement requirement is designed to serve a traffic for 40 years. However, based on the review of the opening of traffic access in 2013, there was a deformation, such as longitudinal cracks. Furthermore, based on the monitoring of 2022, the road condition still experiences cracking and pumping. The aim of this study is to determine the degree of deformation from the calculation of the Present Serviceability Index (PSI) of rigid pavement by taking into account the requirements for pavement calculations along with technical plans for handling rigid pavements through preservation approach and road improvement.*

*Using Pavement Design Manual method 2021 and AASHTO 1993: based on the result of paving performance evaluation by utilizing the correlations of IRI and PSI, the worst damage is at Km. Sby (118 + 000) – (118 + 600), the calculation result of soil reaction modulus of CBR mix design (315 pci), rigid pavement with CAM (24922 pci), rigid pavement without CAM (21537 pci), and the modulus of soil reaction of CAM (46718 PCI). Evaluation of plate thickness which is originally 27 cm is recommended to be 30.5 cm based on the heavy vehicle traffic analysis for UR 40 years amounts to 53,022,565 ESAL. Temporary handling is conducted by damage preservation, and cracks is solved by filling gap and pumping with filler material grouted to the cavity under concrete slab. Road improvement with technical plan of UR 40 years handling using overlay, a type of separated overlay cement concrete pavement, and Pd T-14-2003 method with 20 cm in the cracked condition and 26 cm in the structural damage condition.*

**Keywords:** *Rigid Pavement, CAM, PSI, soil reactivity, AASHTO 1993, Pavement Design Manual 2021, Pd T-14-2003, Preservation, Road Improvement, Separated Overlay.*