INTISARI

Jalan Tol Pondok Aren – Serpong merupakan jalan tol dalam kota 6 lajur 2 arah yang menghubungkan antara kota Jakarta dan Tangerang Selatan dan mulai beroperasi pada Februari 1999. Dampak nyata dari jalan Tol Pondok Aren – Serpong yaitu dapat membantu menekan waktu tempuh dan mengurai kepadatan kendaraan secara efisien di wilayah Tangerang Selatan yang berakibat pada peningkatan volume lalu lintas tiap tahunnya. Hal tersebut yang akan berdampak pada menyusutnya umur pelayanan perkerasan jalan dan kerusakan lubang serta pengausan agregat aspal. Mengingat pentingnya hal tersebut, Badan Usaha Jalan Tol (BUJT) perlu melakukan upaya identifikasi kerusakan perkerasan dan memilih metode yang tepat sebagai faktor penting upaya preservasi jalan.

Proyek akhir ini mengevaluasi kondisi lapis permukaan jalan berdasar hasil survei visual permukaan perkerasan jalan tol dengan bantuan *relation diagram*, perhitungan umur sisa perkerasan jalan *(Remaining of Life)* berdasar repetisi beban lalu lintas, serta analisis desain tebal lapis tambah pada struktur perkerasan dengan berdasarkan pedoman Bina Marga Pd T-05-2005-B dan AASHTO 1993.

Hasil evaluasi kondisi Jalan Tol Pondok Aren – Serpong berdasar rekomendasi MDPJ 2020, mayoritas hasil preservasi jalannya adalah pemeliharaan rutin, namun beberapa titik/KM sudah memerlukan tindakan perbaikan berupa *overlay*. Berdasar penilaian PCI didapati jenis kerusakan jalan paling besar di jalur arah Jakarta adalah *patching* dengan total sebesar 1.809 m², sehingga berdasar analisis yang mengacu pada pedoman Bina Marga 2020 didapat hasil umur sisa perkerasan lentur sebesar 8,92% dengan kumulatif perhitungan lalu lintas sebesar 23.499.067 ESAL. Analisis desain *overlay* berdasar lengkung lendutan berpedoman AASHTO 1993, didapat hasil kebutuhan arah Jakarta sejumlah 15 titik yang tersebar di 10 titik bahu luar jalan, 3 titik lajur 1, dan 2 titik di lajur 2 dengan tebal nilai maksimum *overlay* adalah 15 cm sedangkan pedoman Bina Marga Pd T-05-2005-B diperoleh hasil bahwa perkerasan tersebut masih mampu menahan beban lalu lintas yang akan datang. Penilaian visual permukaan perkerasan didapatkan kerusakan pada jalur arah Serpong mayoritas adalah *polished agregat* sebesar 400,5 m^2 dengan penyusutan umur layan perkerasan lentur sebesar 39,99% yang telah dilewati 15.483.650 ESAL. Desain tebal lapis tambah berdasar analisis lengkung lendutan dengan pedoman AASHTO 1993 untuk arah Serpong didapat total 6 titik yang terdiri dari 3 titik di bahu luar jalan, 2 titik lajur 1, 1 titik lajur 3 dengan nilai maksimum tebal lapis tambah adalah 10 cm, sedangkan pedoman Bina Marga Pd T-05-2005-B didapat kebutuhan *overlay* setebal 5,2 cm.

Kata kunci: Perkerasan Jalan Tol, Umur Sisa, Tebal Lapis Tambah.

ABSTRACT

Pondok Aren - Serpong Toll Road is a 6-lane 2-way inner city toll road that connects the cities of Jakarta and South Tangerang and began operating in February 1999. It can help reduce travel time and reduce vehicle density efficiently in the South Tangerang area which results in an increase in traffic volume each year. This will have an impact on reducing the service life of road pavements and damage to potholes and polished aggregates. Given the importance of this, the Toll Road Business Entity (BUJT) needs to make efforts to identify pavement damage and choose the right method as an important factor in road preservation efforts.

This final project evaluates the condition of the road surface layer based on the results of a visual survey of the toll road pavement surface with the help of relation diagrams, calculation of the remaining life of the pavement based on the repetition of traffic loads, and analysis of the additional layer thickness design on the pavement structure based on Bina Marga Pd T-05-2005-B and AASHTO 1993.

Based on the 2020 MDPJ recommendations, the results of evaluating the condition of the Pondok Aren - Serpong Toll Road indicate that the majority of road preservation results are routine maintenance, but several points/KM already require corrective action in the form of overlays. Based on the PCI assessment, it was found that the largest type of road damage on the route to Jakarta was patching with a total of 1,809 m², so based on an analysis that referred to the 2020 Bina Marga guidelines, the remaining life of flexible pavement was obtained at 8.92% with a cumulative traffic count of 23,499,067 ESAL. Analysis of the overlay design based on the deflection curve guided by AASHTO 1993, obtained the results of the Jakarta direction requirement of 15 points spread over 10 off-road shoulder points, 3 points on lane 1, and 2 points on lane 2 with a maximum overlay thickness of 15 cm while the Bina Marga guidelines Pd T-05-2005-B obtained the result that the pavement is still able to withstand future traffic loads. Visual assessment of the pavement surface found damage to the Serpong route, the majority of which were polished aggregate of 400.5 m2 with a reduced service life of flexible pavement of 39.99% which had passed 15,483,650 ESALs. The design of the added layer thickness based on deflection curve analysis with the AASHTO 1993 guidelines for the Serpong direction obtained a total of 6 points consisting of 3 points on the outer shoulder, 2 point lane 1, 1 point lane 3 with a maximum value of layer thickness of 10 cm, while the Bina Marga guidelines Pd T-05-2005-B obtained an overlay requirement of 5.2 cm thick.

Keywords: Toll Road Pavement, Remaining of Life, Overlay.