

# ***THE EVALUATION AND SIMULATION ROAD PERFORMANCES ROUTE OF FREIGHT TRANSPORTATION, DUMAI CITY***

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## ***ABSTRACT***

*The rapid growth of Dumai City has led to increased movement within the city. The presence of numerous industrial factories in Lubuk Gaung, Sungai Sembilan Subdistrict, Dumai City has resulted in a high volume of freight vehicle traffic, especially on Cut Nyak Dien Street. Cut Nyak Dien Street is the only route directly connecting freight vehicles to the industrial factories in Lubuk Gaung, Sungai Sembilan Subdistrict. This situation has led to negative impacts, including traffic congestion. The objective of this study is to assess the capacity and performance of Cut Nyak Dien Street in Dumai City using the PKJI 2023 method and to simulate the conditions using the PTV Vissim 9 Student Version application. The analysis results using PKJI 2023 indicate that the capacity of Cut Nyak Dien Street is 2,178 PCU/hour. Based on the flow-to-capacity ratio, the existing degree of saturation is highest at 0.61, with projected values of 0.77 in 5 years and 0.97 in 10 years. This indicates that Cut Nyak Dien Street will be congested in the future. Therefore, it is necessary to upgrade the road by widening it and improving side obstacles. After the road improvement, the highest degree of saturation projected for 10 years is 0.78.*

**Keywords:** *PKJI 2023, Capacity, Degree of Saturation.*