STUDY ON ASSESSMENT OF AXLE LOAD MANAGEMENT SYSTEM IN CONTEXT OF CROSS BORDER TRADE (CPEC, AFGHAN BORDER, IRAN ETC.)

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Abstract

An efficient and well-maintained transportation system serves as the backbone for all economic activities. Efficient transportation systems move goods and people throughout local, regional, state, national and international economies in a safe, timely, and reliable manner. The effect of axle loading and, in particular of over loaded vehicles, on the requirement for the road maintenance is considerable. For example, a single axle load of 36,000 lb. will cause about 16 times the damage as an 18,000 lb. In this study, marginal pavement damage cost (MPDC) was estimated for National Highways of Pakistan. For model estimation, cost data were obtained from the MR&R strategies. Total traffic load (ESALs) were calculated using AADT and WIM data. Statistical model was estimated using OLS regression techniques. Lastly, a comparison is carried out between current road use toll and actual damage incurred by different truck classes to pavement for N-5.

The increase in maintenance budgets is due to overloading. Marginal PDC was estimated to be Rs. 0.59/ ESAL km - (2016 fixed rupees) per share of the load. PDC as Rs. 0.475 / ESAL- km (2016 fixed rupees) (80% share of the load in the cost of damage to the pier) for the national highway system. It was revealed from the comparison of the current toll and the cost of actual damages, that it is appropriate to charge vehicles based on PDC. Moreover, rate of fines and tolls on the national highway system must be based on the damage (ESALs) resulting from each vehicle class. The transporters pay Rs. 1500 (maximum) due to overloading for every 2000 km/weight station travelled on the national highways which cause damages. Distance between the weight station of about 2000 km is much more to control overloading vehicles. In order to overcome these damages, it is concluded that the overloaded vehicle would be fined as per mileage. In addition, the increase in the large vehicle due to CPEC project it is necessary to increase number of weight station. Hence, it is essential to update and enforce the axle load management regulations in accordance with the international standards.