

Evaluation of Vehicle Classification Categories: Florida Case Study

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Abstract : This paper addresses the need for accurate and updated vehicle classification system through a thorough evaluation of vehicle class categories to identify errors arising from the existing system and proposing modifications. The data collected from two permanent traffic monitoring sites in Florida were used to evaluate the performance of the existing vehicle classification table. The vehicle data were collected and classified by the automatic vehicle classifier (AVC), and a video camera was used to obtain ground truth data. The Federal Highway Administration (FHWA) vehicle classification definitions were used to define vehicle classes from the video and compare them to the data generated by AVC in order to identify the sources of misclassification. Six types of errors were identified. Modifications were made in the classification table to improve the classification accuracy. The results of this study include the development of updated vehicle classification table with a reduction in total error by 5.1%, a step by step procedure to use for evaluation of vehicle classification studies and recommendations to improve FHWA 13-category rule set. The recommendations for the FHWA 13-category rule set indicate the need for the vehicle classification definitions in this scheme to be updated to reflect the distribution of current traffic. The presented results will be of interest to States' transportation departments and consultants, researchers, engineers, designers, and planners who require accurate vehicle classification information for planning, designing and maintenance of transportation infrastructures.

Keywords : vehicle classification, traffic monitoring, pavement design, highway traffic

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