

## Heavy Vehicle Traffic Estimation Using ATR/WIM Data: Current Practice and Proposed Methods

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**Abstract :** Accurate estimation of traffic loads is critical for pavement and bridge design, among other transportation applications. Given the disproportional impact of heavier axle loads on pavement and bridge structures, truck and heavy vehicle traffic is expected to be a major determinant of traffic load estimation. Further, heavy vehicle traffic is also a major input in transportation planning and economic studies. The traditional method for estimating heavy vehicle traffic primarily relies on AADT estimation using Monthly Day of the Week (MDOW) adjustment factors as well as percent heavy vehicles observed using statewide data collection programs. The MDOW factors are developed using daily and seasonal (or monthly) variation patterns for total traffic, consisting predominantly of passenger cars and other smaller vehicles. Therefore, while using these factors may yield reasonable estimates for total traffic (AADT), such estimates may involve a great deal of approximation when applied to heavy vehicle traffic. This research aims at assessing the approximation involved in estimating heavy vehicle traffic using MDOW adjustment factors for total traffic (conventional approach) along with three other methods of using MDOW adjustment factors for total trucks (class 5-13), combination-unit trucks (class 8-13), as well as adjustment factors for each vehicle class separately. Results clearly indicate that the conventional method was outperformed by the other three methods with a large margin. Further, using the most detailed and data intensive method (class-specific adjustment factors) does not necessarily yield a more accurate estimation of heavy vehicle traffic.

**Keywords :** traffic loads, heavy vehicles, truck traffic, adjustment factors, traffic data collection

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