

DEVELOPMENT OF INTEGRATED PERFORMANCE MODEL FOR INTEGRATED SYSTEM OF
ELECTRONIC TOLL COLLECTION (ETC) AND ELECTRONIC SCREENING (ES) ON FREEWAY

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Abstract

The main objective of this study is to develop the performance model that integrates delay time reduction (efficiency index) and conflict volume reduction (safety index) for integrated system of Electronic Toll Collection (ETC) and Electronic Screening (ES) with Weigh-In-Motion (WIM) on freeway. Some possible integrated layouts of ETC and ES are analyzed firstly. A toll plaza simulator TPS is utilized to simulate the delay condition and compute average delay time of each commercial vehicle according to different integrated layout scenarios. The traffic conflicts analysis model is also developed to compute the traffic conflicts reduction performance. Some results from this study could provide useful evaluation basis for ETC and ES deployments in Taiwan.

Keyword : Performance Model, Electronic Toll Collection (ETC), Electronic Screening (ES), Weigh-In-Motion, WIM.