Methodology to Identify the Optimum Number of Locations that Minimized Double Counting Errors for Origin – Destination Surveys

P.C.P. De Silva[1], J.M.S.J. Bandara[2]

An origin – destination matrix is a spatially disaggregated measure of the traffic demand within a defined study area. Further, results of origin – destination (OD) surveys, which primarily comprise information about the spatial and temporal distribution of activities between different traffic zones, are of vital importance for transportation systems operation, design, analysis, and planning. However, in the OD estimation process, the quality of the estimated OD data is highly dependent on accuracy of the input data, which is a subsequent factor of the selection of perfect number and locations of observation. Further, although scholars argue the importance of selecting the correct sample sizes at each location in order to produce accurate data while minimizing the cost and disturbance to the traffic and etc, still it seems this factor has not been incorporated for the studies.

This paper presents a new approach for establishing permanent locations for OD surveys, which enclose entire study area travel movements, by having taken divisional secretariat divisions as the traffic analyzing zones. The main argument considered here is the selection of minimum number and keeping no room for the double counting. Further, the paper evaluates sample sizes required for each counting location for OD surveys.

Key words: Origin Destination Surveys, Optimum, Counting Locations, Sample Sizes

Authors Details:

1. PhD Student, Department of Civil Engineering, University of Moratuwa, chameera.chameera.desilva@gmail.com
2. Professor, Department of Civil Engineering, University of Moratuwa, Bandara@civil.mrt.ac.lk