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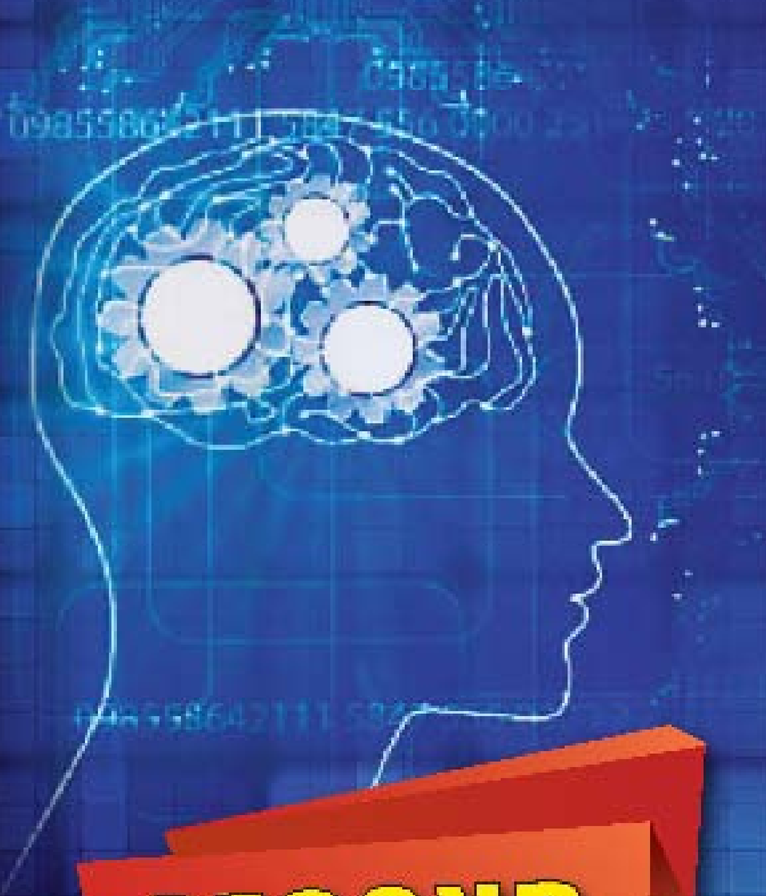

SECOND ISSUE

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Title : **Development of Weaving Section Flow Model of Conventional Roundabout**

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Roundabout has been used and becomes popular in sub-urban residential areas as one of a viable traffic control system at intersections. At roundabout vehicles need to make a circulatory movement before exiting to their respective directions without having to stop, thus minimize delay. Studies on roundabout capacity and performance mostly focus on geometric configuration and flow at the entry, on the basis and acceptance of offside priority rule. Studies had shown that offside priority is most appropriate and efficient with small and mini roundabout. As for conventional roundabout or those with inscribe diameter DI > 50 m, the approach may give rise to differences in predicted capacities. This may be due to the phenomenon of flow interactions (driver behaviour related to lane selection and changing) at the weaving section, and this seems to be the 'gap' in present knowledge on roundabout capacity prediction. Inefficient traffic movement within the weaving section may affect discharge flow, and hence capacity at entry. As such it seems more appropriate to study and measure flow at the weaving area. Thus, this research focuses to understand and study the dynamic as well as complex traffic behaviour/interaction in the weaving section of conventional roundabout, and to give a measure (model) of weaving flow capacity. A typical 4-legs 2-circulatory lanes conventional roundabout was selected with video recorder set-up to capture traffic movements on one of its weaving section. Field data were collected during weekdays which cover both the morning and afternoon sessions. Data reduction was done using semi-automatic vehicle analyser (SAVA) software. Using Excel the raw data (vehicles types, pattern movement and time gap) were organised and tabulated. Statistical tools from MiniTAB were used for data screening and verification. Traffic flow at weaving section which exhibits dynamic and complex behaviour/interaction can be modelled

(Qwsf), that comprises through (nonconflicting Qncf) and weaving (conflicting Qcf) movements. These flow patterns are critically governed by the available gaps between vehicles, thus time ideal safe gap (Tisg) been identified and retrieved. With the available data, data transformations and rigorous statistical tests were done during the model development process. Statistical tables and graph plots revealed the good correlations, relationships and significances between the variables/ parameters being considered. The developed model (Qwsf = 2700 + 0.000028 Qncf 3/2.Qcf - 1.22Tisg .Qcf), was calibrated, verified and validated with independent field data (new data set). Comparison of weaving flow capacity between the develop model and observed/field data was within approximately 5% difference. Sensitivity analysis was done to check on the measured of effectiveness (MOE) of the model. Integration between weaving section flow and practical capacity flow enable level of service (LOS) chart being deduced. The LOS chart is considered another significant contribution of this research to practising traffic engineers and academicians. Knowledge on the mechanics of traffic flow interactions at weaving section and the developed model are able to give better prediction on weaving capacity as well as performance level and, hence, the objectives set for this research works were accomplished.