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**Mostafa Ghandehari\***, Civil and Environmental Engineering, The University of Texas at Arlington, UTA Box 19308, Arlington, TX 76019-0308, and **Siamak Ardekani**. *An Analysis of Underwood's model of traffic flow*. Preliminary report.

Underwood's model of traffic flow assumes that speed is a negative exponential as a function of free-flow speed and concentration. It is shown that the geometric mean of speeds for  $n$  observations and the corresponding arithmetic mean of concentrations satisfy the same speed-density equation. The arithmetic-geometric-harmonic mean inequalities are used to obtain various inequalities for flow, density and speed. Calibration of data using exponential regression is discussed. (Received November 26, 2007)