

## **CHANGING SPEED-VMT DISTRIBUTIONS: THE EFFECTS ON EMISSIONS INVENTORIES AND CONFORMITY**

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### **Abstract.**

The emissions factor modeling component of the motor vehicle emissions inventory (MVEI) modeling suite is currently being revised by the California Air Resources Board (CARB). One of the proposed changes in modeling philosophy is a shift from using link-based travel activity data to trip-based travel data for preparing mobile emissions inventories. Also as part of the revisions, new speed correction factors (SCFs) will be developed by CARB for the revised model. The new SCFs will be derived from vehicle emissions on 15 new driving cycles, each constructed to represent a typical trip at a specific average speed. This paper discusses how the new SCFs will affect transportation conformity and emissions inventory development, and evaluates the differences in total emissions produced by trip-based and link-based distributions of speed and vehicle miles of travel (VMT). We simulated both link-based and trip-based speed-VMT distributions using travel data from the Sacramento and San Diego travel demand models. On the basis of the simulation results, there is reason to expect that mobile emissions inventories constructed using the proposed trip-based philosophy will differ markedly from those constructed in the current manner. Noting that results may vary by region, increases are expected in the CO and HC inventory levels, with concomitant decreases in the NO<sub>x</sub> mobile emissions inventories.