Abstract

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TRIBUTE: TRIp-Based Urban Transportation Emissions Model for Municipalities.

This research aims at developing modeling and scenario-comparison tools to explore the impacts of various transportation and land use planning policies on changing travel behavior and eventually greenhouse gas (GHG) emissions. A Trip-Based Urban Transportation Emissions (TRIBUTE) model is developed. Data required for TRIBUTE comes from household travel surveys and emissions inventories, which is a major advantage in cases where a detailed transportation network model is unavailable. TRIBUTE is composed of two main parts: a mode choice model and an emissions forecasting model. The mode choice model is responsible for estimating modal shares of alternative modes of travel in response to changes in personal, modal, and land use attributes. The emissions forecasting model translates the modal shares into vehicle kilometers traveled, and subsequently GHG emissions. TRIBUTE is a macroscopic model intended to assist municipalities evaluate alternative transportation and land use policy scenarios and eventually Select the one(s) that help them meet their future GHG emission targets. This paper reports on the conceptual framework of the developed model and presents a case study.