

Current Modeling Activities at CMAP

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The CMAP Travel Demand Models are a set of computational tools used to predict transportation system use under a variety of socioeconomic conditions and public policy scenarios.

Advanced Model Development

CMAP is developing a set of advanced models under the "activity-based" modeling framework. This is a multi-year effort outlined in our [Strategic Plan for Advanced Modeling at CMAP](#). Activity-Based Modeling is increasingly viewed as a superior method to better understand the socioeconomic determinants of travel choice and for evaluating modern transportation solutions. The research effort to implement advanced models for metropolitan planning is still comparatively young. Several progressive regional planning agencies nationwide have embarked on advanced model development programs and CMAP joins them in a commitment to improve the state-of-the-practice in travel modeling.

Highway Pricing Model

Development of an [Activity-Based](#) Highway Pricing Model has been completed and is being evaluated for use in GO TO 2040 Implementation studies. We are currently evaluating pricing scenarios for the Central Lake County Corridor proposal as well as general highway pricing strategies applied regionwide. For details see the [Activity-Based Model Final Report](#).

Mesoscale Freight Model

Development of a Mesoscale [Freight](#) Model has been completed. This is the middle section of a three-tiered freight analysis construct underway at CMAP. The Mesoscale model interprets the shipper-receiver relationship between individual firms in the CMAP region and the national goods movement economy. We are currently using the model to evaluate proposals for new intermodal facilities and infrastructure improvements in the CMAP region. For details see the [Meso-Scale Freight Model Final Report](#).

Transit Modernization Model

Proposals have been received in response to an RFP for development of a Transit Modernization Model. This model will extend the tour and mode choice sensitivity of the Highway Pricing Model to respond to transit modernization strategies such as fare payment methods, customer communications and amenities, and system performance technologies. The development process is expected to take 18 months.

Macroscale Freight Model

Proposals have been received in response to an RFP for development of a Macroscale Freight Model. This model will interpret Chicago's general economic position in the global economy for the express purpose of providing policy and scenario sensitivity to the mesoscale model. The development process is expected to take 18 months.

Standard Travel and Emissions Model

CMAP's standard "trip-based" models are used to evaluate long-range regional planning strategies and to estimate transportation contributions to regional air quality. The results of these models also help transportation engineers design their projects for actual construction. Our "trip-based" method is widely accepted and is the primary approach used for metropolitan transportation planning nationwide.

Model currency

The "trip-based" models are documented in support of CMAP's [GO TO 2040](#) Comprehensive Regional Plan and required demonstration of [Air Quality Conformity](#). The [Travel Model Documentation Report](#) describes the overall structure and flow of the CMAP trip-based models. Model parameters have been updated using the 2007 Travel Tracker Survey and we are currently incorporating the 2010 Census results.

Model Validation

In the past year, we have published our first-ever [Travel Model Validation Report](#) which examines the reasonableness of CMAP's "trip-based" model results.

Mobile6 to MOVES

Our standard trip-based models are used to prepare the inputs required by Mobile6 to estimate mobile source emissions for purposes of demonstrating air quality conformity. As we prepare to shift to the MOVES model, only minor modifications are required to the travel modeling procedures with no significant data gaps arising. MOVES may require additional data development outside of the travel model inputs.

Moving from trip-based to activity-based models for Conformity

Activity-based modeling techniques provide significant advantages in addressing regional planning and policy questions. Their contribution to improving the current practice of emissions modeling for conformity is limited. We plan to replace components of our trip-based model with advanced model counterparts once we are convinced of their robustness under multiple applications and scenarios.