

Subarea Travel Demand Model Guidelines

General Policy Statement

Alameda CTC maintains a Countywide Travel Demand Model (Countywide Model) which is in conformance with MTC's Regional Travel Demand Model and land use database and can therefore be used to satisfy Congestion Management Program (CMP) requirements in Alameda County. The Master Transportation Demand Model Agreements made between the Alameda County Congestion Management Agency and local jurisdictions detail the process through which local jurisdictions can have access to the Countywide Model and use its results for CMP conformance purposes.

An alternative to using the Countywide Model which local jurisdictions or groups of local jurisdictions may wish to pursue is the development of subarea travel demand models (subarea models) for the purpose of satisfying CMP requirements. Subarea models may be more effective than the Countywide Model for the evaluation of certain local conditions or CMP applications.

Local jurisdictions may use a subarea model for CMP purposes so long as the subarea model demonstrates consistency with the Countywide Model. Results from subarea models which are not consistent with the Countywide Model will not be accepted by Alameda CTC for CMP purposes.

Consistency Guidelines

A two-step process has been established to determine consistency of a subarea model with the Countywide Model. The two-step process includes an initial evaluation of subarea model compatibility by the Alameda CTC (step one) and, if required, additional data and information to be submitted to Alameda CTC to verify consistency (step two).

Step One

- A. Local jurisdictions apply to Alameda CTC for a consistency finding. The application shall consist of the following:
 - i. A written communication to Alameda CTC requesting a model consistency finding.
 - ii. A complete model consistency checklist.
- B. In the case of new/proposed subarea models, Alameda CTC staff must be part of the Local Technical Advisory/Oversight Committee/Taskforce for model development.

Step Two

- C. If additional information is required to determine consistency, Alameda CTC staff will review modeling procedures and land use database issues with local modeling staff.

Acceptable CMP-related Uses of a Consistent Subarea Model

A subarea model that has been found to be consistent with the countywide Model may be used for the following CMP-related uses:

1. Forecasting of operating conditions on roadway segments.
2. Development impact analysis performed for the CMP Land Use Analysis Program.
3. Testing of mitigation measures or deficiency plan recommendations to address degradation of level of service (LOS) on CMP roadway segments operating below LOS E.

Annual Recertification

Annual recertification of subarea models is required by Alameda CTC. Recertification requires a written request that must clearly explain why the subarea model should be recertified on the basis of one of the following two conditions:

1. All changes to the model specifications of the land use database (1) were reported to the Alameda CTC previously or (2) are changes done in coordination with the land use database update process of the Countywide Model; or
2. Recertification request includes a completed consistency checklist.

Development and Operation of Subarea Models

It is assumed that subarea models will be developed by local jurisdictions that will have responsibility for their operation, maintenance, and the costs associated with them. As a condition for delegation of Alameda CTC modeling responsibilities, it is assumed that local jurisdictions will commit to providing adequate ongoing technical support for all model applications in support of a CMP requirement (e.g., land use analysis or deficiency analysis). It is assumed that consultant assistance would normally be required for model development and maintenance.

Dispute Resolution

Disputes regarding consistency or appropriate use of a subarea model shall be brought to the Alameda County Technical Advisory Committee.

Alameda CTC Checklist for Modeling Consistency for Local Jurisdictions

This checklist guides local jurisdictions wishing to develop a subarea model through their model development and consistency review process by providing an inventory of specific products to be developed and submitted to Alameda CTC, and by describing standard practices and assumptions.

A. General approach:

Discuss the general approach to travel demand modeling by the local jurisdiction and the subarea model's relationship to the Alameda Countywide Travel Demand Model.

PRODUCT:

- 1) Description of the subarea model's general approach.

B. Demographic/economic/land use forecasts:

Both base and forecast year demographic/economic/land use ("land use") inputs must be consistent—though not identical—to the census tract-level data provided to Alameda CTC by ABAG. Specifically, if local jurisdictions wish to reallocate land use within their own jurisdiction, they must consult with Alameda CTC. Further, the resulting deviation in the subject jurisdiction (or jurisdictions) should be no greater than plus or minus 1 percent from the jurisdiction-level totals in the Alameda CTC land use database for the following variables: population, households, jobs, and employed residents.

Outside the subject jurisdiction (or jurisdictions) and within Alameda County, the land use variables in the travel analysis zones used by the jurisdiction's model must match the Alameda CTC model or another adopted subarea model (e.g., the City of Hayward could adopt the land use from within the City of Dublin

if the City of Dublin's model for use in the TAZs within the City of Dublin had an approved subarea model).

Outside of Alameda County, the land use variables in the travel analysis zones used by the jurisdiction's model must match the Alameda CTC model exactly.

PRODUCTS:

- 2) A statement establishing that the differences between key Alameda CTC land use variables and those of the subarea model do not differ by more than 1 percent at the jurisdiction level for the subject jurisdiction. A statement establishing that no differences exist at the census-tract-level outside the jurisdiction between the Alameda CTC forecast or the forecast contained within an adopted subarea model.
- 3) A table comparing Alameda CTC land use estimates with the subarea model land use estimates by jurisdiction for population, households, jobs, and employed residents for both the base year and the horizon year.
- 4) If land use estimates within the jurisdiction are modified from the Alameda CTC model projections, agendas, discussion summaries, and action items from each meeting held with Alameda CTC at which the redistribution was discussed, as well as before/after census-tract-level data summaries and maps.

C. Pricing assumptions:

Use Alameda CTC's automobile operating costs, transit fares, and bridge tolls or provide an explanation for the reason such values are not used.

PRODUCT:

- 5) Table comparing the assumed automobile operating cost, key transit fares, and bridge tolls to Alameda CTC's values for the horizon year.

D. Network assumptions:

Use Alameda CTC's regional highway and transit network assumptions for the other Bay Area counties

and other jurisdictions within Alameda County. Local jurisdictions should include a more detailed network definition relevant to their own jurisdiction in addition to the regional highway and transit networks. For the CMP horizon year, to be compared with the Transportation Improvement Program (TIP) interim year, regionally significant network changes in the base case scenario shall be limited to the current TIP for projects subject to inclusion in the TIP.

PRODUCT:

- 6) Statement establishing satisfaction of the above.

E. Automobile ownership:

Use Alameda Countywide Travel Demand Model automobile ownership models or forecasts or submit alternative models to Alameda CTC for review and comment.

PRODUCT:

- 7) Planning area-level table comparing estimates of households by automobile ownership level (zero, one, two, or more automobiles) to Alameda CTC's estimates for the horizon year.

F. Trip generation:

Use Alameda Countywide Travel Demand Model trip generation models or submit alternative models to Alameda CTC for review and comment.

PRODUCT:

- 8) County-level tables comparing estimates of trip and/or tour frequency by purpose to MTC's estimates for the horizon year.

G. Trip distribution:

Use Alameda Countywide Travel Demand Model trip distribution models or submit alternative models to Alameda CTC for review and comment.

PRODUCTS:

- 9) County-level tables comparing estimates of average trip distance by tour/trip purpose to Alameda CTC's estimates for the horizon year.

- 10) Planning area-to-planning area comparison of journey-to-work or home-based-work flow estimates to MTC's estimates for the horizon year.

H. Travel mode choice:

Use Alameda Countywide Travel Demand Model mode choice models or submit alternative models to Alameda CTC for review and comment.

PRODUCT:

- 11) County-level tables comparing travel mode share estimates by tour/trip purpose to Alameda CTC's estimates for the horizon year.

I. Traffic assignment:

Use Alameda Countywide Travel Demand Model traffic assignment models, or submit alternative models to Alameda CTC for review and comment.

PRODUCTS:

- 12) County-level, time-period-specific comparison of vehicle miles traveled and vehicle hours traveled estimates by facility type to Alameda CTC's estimates for the horizon year.
- 13) County-level, time-period-specific comparison of estimated average speed on freeways and all other facilities, separately, to Alameda CTC's estimates for the horizon year.