

Lake County Blueprint Tool Box Modeling Matrix					
	Small Regions	MXD	Four-County / Wine Country Interregional Partnership (WCIRP)	TransModeler/LAMM	UPlan
Description of Model	Predicts vehicle miles traveled (VMT) for a region or other area by estimating VMT per household and aggregating to the regional level. Incorporates Smart Growth (or "D") characteristics of the region.	Predicts vehicle trips by accounting for the Smart Growth (or "D") characteristics of the development site and its surrounding built environment	Forecasts traffic in future years on roads of regional significance in Lake, Mendocino, Napa, and Sonoma Counties. The model has different versions representing the Base Year (2009), 2020 and 2030. A key issue for this model to analyze is the jobs/housing balance with the four-county study area.	Simulates traffic operations – driver route choices, vehicle movements, and traffic signal operations – microscopically (i.e., at a 1/10 second resolution) on all streets throughout most of the county.	GIS-based application that forecasts land use allocation at the parcel level. Land use allocation is determined based on user specified rules (e.g.: "no urban uses on prime agricultural land")
Scale of Application	County /region, neighborhood, or traffic analysis zone (TAZ)	Individual project or development site of 2 - 5,000 acres	Four-county region for Lake, Mendocino, Napa, and Sonoma Counties.	Scale of Application: Model spans nearly the entire county, with lane-level detail on all streets that are included in the Wine Country Interregional Partnership (WCIRP) travel demand model.	Regional to city scale. The most frequent use is at a county scale.
Inputs	Inputs are estimated per household (hh) in area being studied. These include: hh size, zero vehicle hh, drivers in hh, number of children in hh, income category, hh vehicles, residential density within ½ mile of hh, developed acres within ½ mile of hh, commercial acres within ½ mile of hh, urban indicator, jobs within ½ mile of hh, land use mix within ½ mile of hh, jobs-housing ratio within ½ mile of hh, roadway density, distance to rail	Number and size of each land use, developed area, number of intersections, portion of households near transit, employment near site, regional employment, number and type of housing units, average household size, vehicle ownership rate	Road network data and land use data using: traffic analysis zones (TAZs) external commute areas, residential land uses, seasonally-occupied housing, non-residential land uses, schools and colleges; employment data.	Inputs: Origin-to-destination vehicle trip matrices for the AM and PM peak periods, road network geography and geometry, traffic signal timings.	Land use attributes (e.g., Analysis area, rates of development by land use type, existing developed space, zoning or land use, slope, farmland rating if applicable, natural factors (wetland, threatened/endangered species habitat). Land use attributes can be customized and can include accessibility measures.
Outputs	Average (per hh) and total areawide VMT	Daily, AM peak hour and PM peak hour external vehicle trips (raw trips, net trips and percent reduction in trips due to smart growth characteristics of the development)	A variety of tabular and graphical outputs for each sub-model. Shapefiles with Volumes and Speeds, Origin-Destination summary reports. Trip length distribution. In and out-community for work between the four study counties and other counties outside the model area.	Outputs: Travel times (point-to-point, origin-to-destination, and corridor), delays, queue lengths, HCM 2010 levels of service for urban streets, freeway segments, intersections, and roundabouts	Land use allocation by grid cell. The most common grid size is 50m to a side (~0.6 Acres), but this is customizable.

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Software Platform / Requirements	Excel	Excel	TransCAD	Software Platform/Requirements: TransModeler	ArcGIS 9.3+ with Spatial Analyst and VBA
Level of Effort	Medium	Low	Medium	Medium to apply/run the model High to build/calibrate the model	Medium to apply/run the model. High to build/calibrate the model
Compatibility with other models	UPLAN	Can be used to estimate trip reductions for TAZs in other models.	UPLAN	Compatibility with other models: Compatible with the WCIRP travel demand model (i.e., shares the same zone structure and software platform)	Land use can be exported to TAZs (WCIRP or other TAZ systems). The GIS outputs can be used in other GIS based analyses
Examples	<ul style="list-style-type: none"> Can be used to evaluate the VMT impacts of different land use scenarios for the county, such as quantifying reductions in vehicle use due to implementation of Smart Growth policies Can be used for developing and assessing long-term growth plans for the county 	<ul style="list-style-type: none"> Can be used to estimate the number of vehicle trips generated by a proposed new development, such as a mixed-use, infill development on Main Street, Lake City Can be used to quantify the reduced number of vehicle trips generated by a Smart Growth development compared to a suburban development 		<ul style="list-style-type: none"> Can be used to evaluate the traffic impacts of a proposed new development such as a mixed-use, infill development on Main Street, Lakeport 	Can be used to forecast: <ul style="list-style-type: none"> Rates and locations of land use conversion by type(residential or employment) Natural resource impacts. General (or long-term) Plan alternative testing with export to travel analyses.
Other / Notes	Developed by Fehr & Peers	Developed by Fehr & Peers	Developed by Parsons Brinckerhoff for Caltrans	Developed by Caliper Corporation	Developed by UC Davis