Chapter 5: Travel Forecasts

Travel demand forecasting is an important role of TMPO in order to inform decision making and planning efforts. TMPO has a comprehensive data collection and analysis program that is aimed at maintaining a calibrated traffic model and other analytical tools to provide for an informed metropolitan planning process. The Lake Tahoe region has unique visitation, travel and development patterns that are compounded by significant growth within driving distance of the region.

TMPO utilizes a new GIS-based traffic model package (TransCAD) that began development in 2004. The model utilizes an activity-based model that was informed by an extensive travel survey that collected household travel data as well as travel diary information from over 1,200 households. The survey effort focused on residents, overnight-visitors, and day-visitors within the summer and winter months to capture seasonality patterns.

With the changes in software, databases, surveys, street modeling networks and overall modeling methodology, one requirement that remains is a TRPA water quality and air-quality visibility threshold indicator to reduce Vehicle Miles Traveled (VMT) by 10 percent from the 1981 estimate. VMT is a computed value that measures the extent of travel characteristics for a given area. The previous TRPA models would calculate the number of trips made on the highway network and the distance between trip origins and trip destinations and then calibrate its models from current traffic count information.

In 1981, TRPA estimated the VMT was 1,649,000. Using the TransCAD model containing additional sets of information and a more detailed street network in 2005 VMT was estimated at 2,079,849. The TransCAD model is expected to be used by the TMPO into the future, so any modeling efforts will be consistent in methodology with the 2005 model estimate.

Additional enhancements of the TransCAD model include the development of a transit module that incorporates future changes to transit routes, fares and the breakout of model output under four distinct daily time frames (AM Peak, Midday, PM Peak, Overnight), as well as its ability to model with geographic accuracy. The previous model's street networks were stick and node representations, whereas now the TransCAD street network is established with a Geographic Information System (GIS) that provides accurate representations of the physical street network, and land use associations. Inclusion of bicycle and pedestrian facility's impacts on the transportation network for future considerations is under investigation.

Additional information concerning the TransCAD model development and calibration efforts are referenced in *Lake Tahoe Resident and Visitor Model; Model Description and Final Results;* Parsons, Brickerhoff, Quade & Douglas Inc. August 2007.

Growth Assumptions

In order to assemble the growth assumptions for population and land use patterns, the TMPO staff drew on discussions of the TRPA general plan update (Pathway) to help formulate future growth forecasts. Utilizing the new TMPO transportation model (TransCAD), staff analyzed the cumulative impact of the appropriate project strategies identified in Chapter 3, page 35.

The new TransCAD model is based on an expanded and more complex street network than the old TranPlan model. For that reason, the new model results are not directly comparable to the old model and should be considered a worse case VMT analysis. Future forecasts will be made using the new model, but comparisons to past VMT estimates must be made using an update method to the old model. Using actual traffic counts to update previous estimates, VMT has been estimated to have decreased by 6.5 percent from 1981 levels.

Model Results

Based on the growth assumptions, Vehicle Miles Traveled (VMT) and Vehicle Hours Traveled (VHT) were modeled for the 2012, 2017, 2022 and 2030 forecast time periods. As shown in Figures 5.1 and 5.2, VMT and VHT are expected to increase by 15.31 and 16.27 percent over the forecast period, with the midday time period representing the greatest percentage (40 percent) of travel during the day. This increase does not include a detailed analysis of proposed bicycle and pedestrian facilities and their impact on VMT.

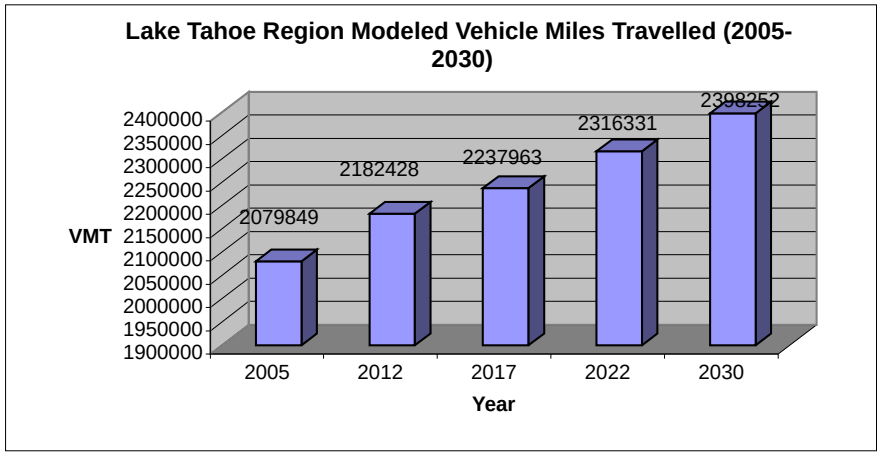

Figure 5.1, Source: TRPA Transportation Model (new TransCAD version)

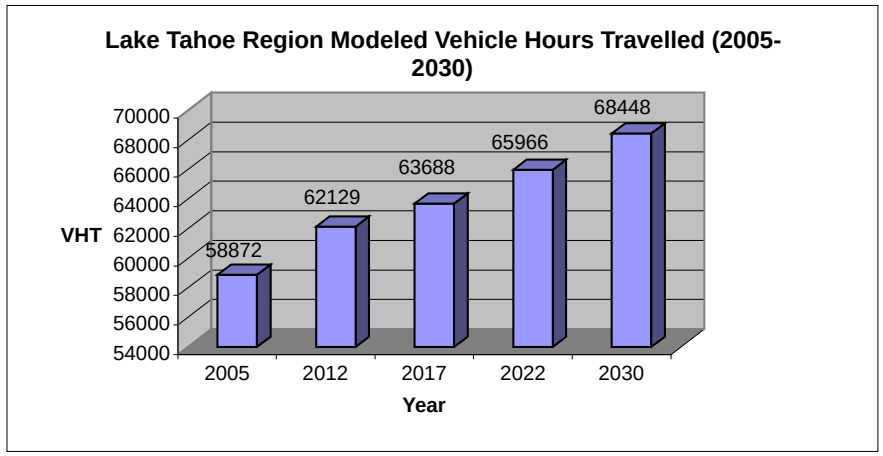

Figure 5.2, Source: TRPA Transportation Model (new TransCAD version)

Model Results - Intersection Level-of-Service (LOS)

In order to analyze the impact of the travel demand forecasts on signalized intersection LOS, the TMPO staff analyzed eight signalized intersections using Highway Capacity Software. Increases in forecast turn movements were analyzed based on the forecast traffic volumes for each analyzed intersection. Intersection LOS is expected to be maintained at LOS "D" throughout the forecast years.

Future efforts to identify LOS will include analyzing overall vehicle delays at signalized intersections while acknowledging that vehicle delays will be generally greater in PTOD areas. The analysis of a bicycle and pedestrian facility LOS policy in identified PTOD areas is under development, and will result in the recognition and measurement of other travel modes at a comparable level as vehicular LOS.

2005 Intersection Level-of-Service	2005 Existing LOS	Forecast 2012 LOS	Forecast 2017 LOS	Forecast 2022 LOS	Forecast 2030 LOS
State Route 89 at State Route 28	C	C	C	D	B
State Route 28 at State Route 267	C	C	C	D	D
State Route 28 at Village Blvd.	C	C	C	C	C
U.S. Highway 50 at Park Ave	D	D	D	D	B
U.S. Highway 50 at Ski Run Blvd.	B	C	C	C	C
U.S. Highway 50 at Tahoe Keys Blvd.	C	C	D	D	D
U.S. Highway 50 at Third Street	C	C	C	C	D
U.S. Highway 50 at State Route 89	C	C	C	D	D

Figure 5.3