

Travel Demand Forecasting Methodology

Travel Demand Forecasting (TDF) is a valuable tool for the long range planning of the transportation system. The main purpose for doing TDF is to quantify the amount of travel on the transportation system. The demand for transportation is created from the general growth of a community, major developments and other activities like recreation and tourism. The supply of transportation system is represented by the planned road network, intersections performance, and roadway capacities. Valley County is divided into seven (7) growth sub-areas for the purpose of allocating land use, demographics and tourism activities the growth sub-areas map is provided in this section.

There are four basic steps in the Travel Demand Forecasting methodology:

1. Trip Generation – This is the first step in conventional modeling. This step converts the demographic/land use data into number of trips. The trip generation analysis was performed using the procedures recommended in the 6th edition of the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE). In this plan, the number of potential trips was determined for each growth area based on the demographics information provided by the County Engineer.
2. Trip Distribution – This second step converts the trip generation data into trip table(s) containing the number of trips going from one growth area to other area. The number of trips traveling within each growth area was considered based on the geographical location of the growth area. The potential trips were distributed based on the location of recreational areas, major cities like Boise, McCall etc.
3. Mode Choice – This third step allocates the person trips from trip distribution to available modes based on a set of factors (i.e., availability of public transit, accessibility, and travel time). Currently, there is limited public transit in the County and hence only passenger cars were considered in this study. The potential trips that use other modes like walking and biking are negligible in this study and hence these modes are ignored.
4. Trip Assignment – The assignment process places the total vehicle trips as estimated travel demand on each link identified in the major roadway network. The assignment process uses the major attraction areas such as

recreational and tourism areas within and outside the County area. This step provides the forecasted future vehicle trips on different roads in the County.

The intersection performance and capacity analysis can be assessed using the peak hour traffic volumes available from the traffic impact studies submitted to Valley County. The roadway capacity analysis and future right of way requirements can be evaluated using the forecasted Average Daily Traffic (ADT) values. The scope of work of the project is limited to developing a simple travel demand forecast method to project traffic volumes on key county roads. Non-peak seasonal average daily traffic was projected with the travel demand forecast methodology. The peak seasonal average daily traffic was derived from the average yearly traffic volumes using an adjustment factor, called Seasonal Variation Factor. The adjustment factor was determined based on the ADT values observed on State Highway 55 in 2006. Currently, it is the only source to determine variation in the seasonal traffic. It is necessary to collect traffic data during the peak and non-peak season on major county roads to determine an accurate adjustment factor. Peak hour traffic volumes were not projected in this study. Typically, the peak hour traffic volume can be assumed from 10 percent to 12 percent of total ADT on any given county road.

Trip Generation

Usually, peak hour trips and daily trips will be estimated using the procedures recommended in the Trip Generation Manual, published by the Institute of Transportation Engineers (ITE). The trip rates provided in the manual were determined from surveys conducted in urban areas. The projected total households do not differentiate between the types of construction, such as individual housing units, planned units etc. Moreover, the trip rates for residential land use type can vary based on the location. For example, high rates can be assumed in urban and suburb areas; and low trip rates can be assumed for residential units targeted toward recreation. Therefore, an average trip rate of 8 trips per household was assumed, for Valley County, to determine the total number of trips in each sub-area. This rate is consistent with the trip rate provided in the traffic impact studies submitted to the County and is used in the CIP process. The following table lists the total number of potential trips in each sub-area.

Table 1: Trip Generation Table and Total Future Trips

Sub-Area	Total HHs	Full-time HHs	Second HHs *	Trips/HH	Total Trips
McCall	2,500	1,000	1,000	8	16,000
Lake Fork	3,000	1,200	1,200	8	19,202
Donnelly	3,000	1,200	1,200	8	19,202
Tamarack/Daystar	2,000	800	800	8	12,800
Cascade	4,500	1,800	1,800	8	28,798
Horsethief	500	200	200	8	3,200
Round Valley/Smith Ferry	1,500	600	600	8	9,600
	17,000	6,800	6,800		108,800
* Note: 40 Percent of Total HHs was considered as Second HHs (occupied at any given time).					

As shown in the above table, there is the potential for 108,800 trips, on a non-peak seasonal day, throughout Valley County by 2030. As per Valley County recommendation, 40 percent of second homes in each growth area were assumed to be occupied at any given time for purposes of estimating the future total trips.

Trip Distribution and Assignment

The potential trips generated in each sub-area were distributed to geographic origins and destinations so that the impacts on the surrounding transportation system can be assessed. The traffic distribution and assignment was performed based on the current travel patterns, available transportation system, and land use type such as recreational areas, tourist hubs etc, and the proximity of the cities.

The following is the list of major collector roads that are included in the Travel Demand Forecasting process.

- ◆ Warren Wagon Road
- ◆ Mission Street
- ◆ Samson Trail
- ◆ Farm to Market Road
- ◆ Old State Hwy
- ◆ West Mountain Road
- ◆ East and West Lake Fork Road
- ◆ Lakeshore Drive