

Estimating traffic flow

A working estimate of traffic flow is necessary to design local roads, internal circulation, and interfaces with local collectors. The larger the project, the more important the estimate of trip generation and vehicle speeds (see Tables 5.6 and 5.7). Traffic flow is affected by a number of factors, some of which are fairly intuitive. For example, the nature of the development under consideration is important. A regional shopping center, a retirement community, a neighborhood geared to young families, and an entertainment complex will all have different traffic characteristics. In most residential cases, peak flows may be expected to occur during the rush hours between 6:00 A.M. and 9:00 A.M., and 4:00 P.M. and 6:00 P.M. Estimating peak time traffic flows from a single-family home, for example, is based on 0.8 trips per day per single-family dwelling unit during peak hours. For townhouses or multifamily units, a trip generation of 0.6 trips per day per unit is used. A single-family unit is expected to generate at least 5 round-trips (leaving and returning) each day, but the trips are not evenly loaded throughout the day. In general, there is more traffic in morning peak hours than in afternoon peak hours.

Vehicle dimensions and turning radii

Using the performance criteria given in Table 5.8, site designers should select a vehicle for design purposes that represents the largest vehicle that frequently uses the street. Different design vehicles should be selected for different hierarchies of

TABLE 5.6 Vehicle Trip Generation, Residential Areas, Number of Trips Per Day

Dwelling type	Average	Range
Single-family detached	10.1	4.3–21.9
Apartments	6.1	0.5–11.8
Condominiums	5.9	0.6–11.8
Mobile homes	4.8	2.3–10.4

Adapted from Institute of Transportation Engineers.

TABLE 5.7 Minimum Design Speeds Based on Average Daily Traffic (ADT) and Design Hourly Volume (DHV)

Terrain	ADT < 400	ADT > 400	DHV 100–200	DHV 200–400	DHV > 400
Level	40	50	50	60	60
Rolling	30	40	40	50	50
Mountainous	20	30	30	40	40

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