

**SHEET (5)**

**CAPACITY ANALYSIS OF UNINTERRUPTED FLOW**

1. Determine the LOS for a 5-mile two-lane highway in rolling terrain. The existing data for this road are as follows:
  - Volume = 1050 veh/h (two-way)
  - Percent trucks = 8
  - Percent RV's = 4
  - Peak hour factor = 0.95
  - Percent directional split = 60 – 40
  - Percent no-passing zone = 40
  - BFFS = 60 mi/h
  - Lane width = 10 ft
  - Shoulder width = 5 ft
  - No. of access points = 15 point/mi
2. A six-lane rural multilane divided highway is on level terrain with 20 access points per mile and has 11 ft lanes, with a 5-ft shoulder on the right side and a 3-ft shoulder on the left side. The peak hour factor is 0.80 and the directional peak-hour volume is 2500 veh/h. There are 7% large trucks, 3% buses, and 2% recreational vehicles. Assume the base free flow speed is 55 mph. Determine the level of service.
3. A section of a four-lane (two lanes in each direction) freeway that is 1.6 miles long and has a sustained grade of 5% is to be improved to carry a regular weekday a heavy volume of 2600 vph, consisting of 87% passenger cars, 6% trucks, 4% buses, and 4% recreational vehicles. The PHF is 0.80. Determine the additional number of 12-ft lanes required in each direction if the road is to operate at level of service B. The base free-flow speed is 70 mph, there is a lateral obstruction 2 ft from the pavement on the right side of the road, and interchange spacing is 1.5 mile. Assume a level terrain.