

CIVL 4162/6162
Traffic Engineering
Assignment-6

Due: December 2, 2019 (before Noon)

Q.1. A divided multilane highway in a recreational area ($f_p=0.90$) has two lanes on each direction and is on a rolling terrain. The highway has 10-ft lanes with a 6-ft right-side shoulder and a 3ft-left side shoulder. The posted speed is 50 mi/h. Formerly there were four access points per mile, but recent development has increased the number of access points to 12 per mile. Before the development, the peak-hour factor was 0.95 and the directional hourly volume was 2200 vehicles with 10% large trucks and buses and 3% recreational vehicles. After development, the peak-hour directional flow is 2600 vehicles with the same vehicle percentages and peak-hour factor. What is the level of service before and after the development?

[CIVL 6162 only]

Q.2. A four-lane freeway with two lanes in each direction operates at capacity during peak hour. It has 11-ft lanes, 4-ft shoulders, and there are three ramps within three miles upstream of the segment midpoint and four ramps within three miles downstream of the segment midpoint. The freeway has only regular users, there are 8% large trucks and buses, and it is on rolling terrain with a peak-hour factor of 0.85. It is known that 12% of the AADT occurs in the peak hour and that the directional factor is 0.6 what is the freeway's AADT?