Birzeit university

Civil engineering department – highway engineering

Quiz 1

Q1 : Given : 2.5 mile straight urban highway with (v/c=0.7), 60 mph design speed, 4% grade, LOS D, and 6000 pcph peak-hour volume. Find the present value associated with the highway VOC assuming 4% discount rate and 30-year analysis period .

Q2 : Given : 360 pcphpl peak-hour approach traffic at urban signalized intersection (g=40 sec, C=100 sec). Find the annual approach stopping cost assuming 2.4 sec saturation headway, 35mph approach speed, and 2-lane approach .

Q3 : Given : 80km/hr freeway mainline speed, tractor semitrailor truck with low (mass/power) ratio. Find the required length of acceleration lane (m) assuming an entrance speed of 30km/hr .