CIVL 4162/6162: Traffic Engineering

Progression: In Class Practice Problems

Practice Problem-1

Two signals are spaced in 1000 ft. The desired progression speed is 40mph, cycle length is 60 sec, saturation headway of 2 sec/veh, and start-up lost time of 2 sec.

a) What is the ideal offset between two intersections assuming that vehicles arriving from upstream are already in progression at the initiation of green?

b) What would be the offset assuming a queue of three vehicles?
Practice Problem-2

A In the time space diagram below find the following:

a) What is the northbound progression speed?

b) What is the northbound bandwidth and bandwidth capacity? Assume saturation headway of 2 s/veh?

c) What is the southbound bandwidth and bandwidth capacity for the same desired speed as northbound?

d) A new signal needs to be introduced between signal 2 and 3. The new signal requires 15 sec of green time. Where would you place it and why?
**Practice Problem-3**

A central business district network has signals spaced at 750ft apart along the primary arterial. It is desired to provide a progression speed of 30 miles/hr to provide service equal to both directions on the arterial.

a) What type of progression scheme would you suggest (i.e. alternate, double-alternate, simultaneous etc.)

b) What cycle length would you suggest to best justify your answer to part (a)
Practice Problem-4

In the figure below, find the number of stops and delay by tracing the lead NB vehicle. Estimate number of stops and delay for the NB vehicle. Do the same for the first SB vehicle.