CE 572 – Spring 2015

Intersection Traffic Operations

Class 18

2 March 2015

1. The fundamental aspect of the platoon dispersion model is to predict the flow rate during a time step. If you multiply this predicted flow rate by the duration of the time step, what is the result?
2. What logic would you use to predict the current length of the queue during a given time step?
3. What is the product of this predicted queue length and the duration of the time step?
4. Does the offset at the downstream signal affect the capacity of the approach at the downstream intersection?
5. Does the arrival pattern at the downstream intersection affect the capacity of the approach at the downstream intersection?

Assignment 26 – Reading

The purpose of this assignment is to learn the fundamental elements of the green time prediction process for the signalized intersection method of the HCM 2010. There are two such prediction processes, one for pretimed control and the other for actuated control. The actuated control method is especially complicated and will require careful study on your part. We will start this process through readings in chapter 31 and documenting the parameters that are used in these methods. Note that the actuated control method is written to cover all possible conditions, more than are needed for most analyses. Our task is to sort through this complexity and ask: what are the basic elements of the method required for our simplified scenario (the intersection of two one-way streets, one lane per approach, TH movements only).

Task 1. Read the sections in the HCM 2010 on predicting green time for pretimed control (pp 31.37-31.40) and actuated control (pp 31.10-31.30).

Task 2. List and define (as best you can) the parameters required for each method to predict green time duration. In addition to the sections listed above, consult the input data table in chapter 18 (Exhibit 18.6, p 18.8).

Task 3. List and define the parameters that are intermediate calculations or results for each method.